Workshop Manual

Citigo 2012 ➤ , Fabia 2000 ➤ ,
Fabia II 2007 ➤ , Fabia II 2009 ➤ ,
Fabia II 2011 ➤ , Fabia III 2015 ➤ ,
Octavia 1997 ➤ , Octavia II 2004 ➤ ,
Octavia II 2010 ➤ , Octavia III 2013 ➤ ,
Octavia III 2014 ➤ , Rapid 2011 ➤ ,
Rapid NH 2013 ➤ , Rapid NH 2014 ➤ ,
Roomster 2006 ➤ , Superb 2002 ➤ ,
Superb II 2008 ➤ , Superb III 2015 ➤ ,
Yeti 2010 ➤ , Yeti 2011 ➤

Paint - general information

Edition 05.2016

List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

Contents

00 – Technical data

1 Safety instructions

(SRL000922; Edition 05.2016)

⇒ "1.1 Safety measures when painting vehicles that use natural gas", page 1

1.1 Safety measures when painting vehicles that use natural gas

DANGER!

Danger of death if drying temperatures are too high! High temperatures increase the pressure in the natural gas or LPG fuel tank. If the pressure is too high, a natural gas or LPG tank may explode and cause death or serious injuries.

High temperatures trigger the thermal fuse of the shut-off valve on natural gas fuel tanks. A pressure increase as a result of high temperature triggers the pressure relief valve in LPG fuel tanks. Gas escapes from the natural gas or LPG fuel tank and may ignite, in particular in the presence of sparks, and cause explosive flames. This can cause death or serious injuries.

- *Parts that convey gas should never be exposed to temperatures above +60°C.*
- *For drying above +60°C in the drying furnace, all natural gas or LPG fuel tanks must be removed and all gas lines must be flushed.*
- *For infrared drying, parts that convey gas in the high pressure reservoir system should never be exposed to temperatures above +60°C.*

– The safety instructions for working on vehicles with an LPG or natural gas system must be followed:

♦ Octavia II, Citigo, Octavia III ⇒ Engine; Rep. gr. 00

– Draining fuel tanks:

♦ Octavia II, Citigo, Octavia III ⇒ Motor; Rep. gr. 20 ; Fuel supply system, operating instructions

2 General Instructions

2.1 Structure of original paintwork

Structure of solid paint, water-based

Layer thickness: approx. 80-130 µm

1 - Steel sheet

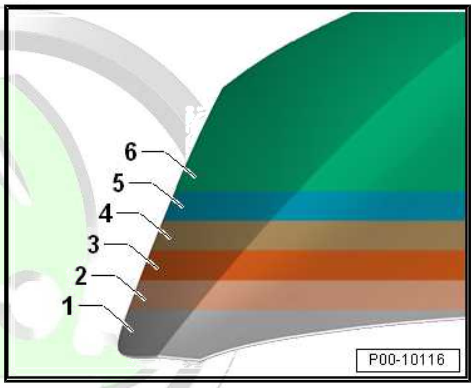
2 - Zinc phosphating

3 - Electrophoretic coating

4 - Water-based filler

5 - Water-based paint

6 - 1K clear coat (Citigo - 2K clear coat)



Structure of metallic and pearl colour paint, water-based

Layer thickness: approx. 80-130 µm

1 - Steel sheet

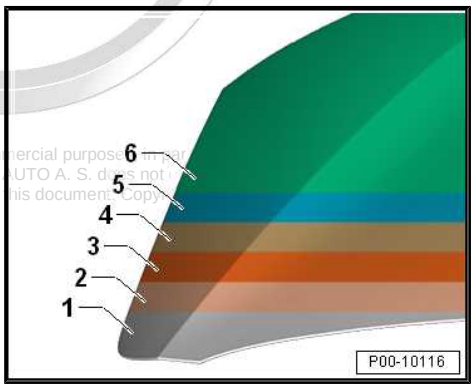
2 - Zinc phosphating

3 - Electrophoretic coating

4 - Water-based filler

5 - Water-based metallic/pearl colour

6 - 1K clear coat (Citigo - 2K clear coat)



Note

- *The approximate layer thickness may vary depending on tone and indicates differences depending on position, as well as vertical and horizontal surfaces.*
- *The values may be exceeded for some vehicles in two or more coats are applied. However, this does not need to be communicated.*

2.2 Structure of customer service paintwork

Galvanized sheets on both sides

Note

- *Ensure that:*
- *all sheets edges are adequately deburred for body repairs.*
- *inner surfaces not to be painted have a complete zinc CDP layer.*
- *internal weld flanges and sanded-through areas are touched up with e.g. InoxSpray - D 007 600 A1- .*

Applying filler

Filler compounds are now essential for bodywork and in the paint shop to restore contour. When applying filler, the different substrate requirements must be observed.

Product information

- ⇒ “3.2 Filler”, page 13

Primer

The primer is the most important part of the anti-corrosion system, because is prevents water and oxygen reaching the metal surface. Original spare parts are normally coated with a black or yellow CDP.

Note

- *Sanded-through areas and weld seams must be re-coated with corrosion protection as soon as possible.*
- *The CDP primer is not resistant to UV or acid. Spare parts must therefore also be painted from the inside.*
- *After repairing corrosion and in general for any bare metallic substrate, you must insulate with e.g. 2K wash primer - LHV 043 000 A2- or -LLS MAX 230 M1- , then fill with 2K HS performance filler .*

Product information

- ⇒ “3.3 Corrosion prevention”, page 18

Filler

- The filler makes sure that the entire coating system adheres well to the body part to be painted.
- The filler serves as the substrate for the top coat, levels out unevenness in areas that have already been worked and determines the quality of the top coat. The filler protects the body against chipping and also acts as a barrier/substrate insulation, which is essential for corrosion protection.

PVC seam sealing and underseal

Note

- *For repair, the joint seal must be restored to its original thickness.*
- *To avoid damage and failures, the seal welds in the area of the assembly-specific add-on parts must be coated smoothly.*
- *Water drain holes must be left clear.*
- *All threaded bolts and weld nuts with M-thread and all other bolts and contact surfaces for assembly must be fully functional all along the seal.*
- *The sealant material must not be applied to bare sheet metal, but only on to filled substrates.*
- *To prevent water ingress into the flanges, the sheet fold is sealed with pasty, solvent-free PVC at critical points of the body. A layer of PVC with varying thickness is also sprayed onto accurately defined areas of the underbody and in the wheelhousings as protection against chipping and for sound absorption.*
- *Before sealing/applying underseal, the surface must always be thoroughly primed and filled.*
- *After repairing corrosion and in general for any bare metallic substrate, you must insulate with e.g. 2K wash primer - LHV 043 000 A2- or -LLS MAX 230 M1- , then fill with 2K HS performance filler .*
- *The specific layer thicknesses for the underseal must be observed.*

Product information

- ⇒ “3.5 Underseal”, page 26
- ⇒ “3.6 Protection against stones”, page 37
- ⇒ “3.8 Sealant materials”, page 49

Base coat

The base coat is primarily decorative.

The paints provide different coverage depending on pigment content. The manufacturer's instructions must be followed.

Clear coat

The clear coat is primarily decorative. The clear coat protects the top coat/base coat against ultraviolet radiation and environmental pollution, such as acid in bird droppings.

Wax preservation/cavity preservation

Wax preservation/cavity preservation plays an essential role in corrosion protection. Depending on application, there are various materials available for customer service. These materials provide excellent protection because they have the following properties:

- They are hydrophobic (water-repellent).
- They have good adhesion.
- No corrosion creep.
- Water vapour permeates through them at a rate approx. 1500 times lower than a layer of paint of the same thickness.

Product information

- ⇒ “3.4 Preservation”, page 22
- ⇒ “3.7 Underbody sealing wax”, page 44

2.3 Different paintwork structure for engine compartment and inside of front flap

The paint in the “engine compartment and the inside of front flap” may be different in terms of paintwork structure and tone from the external paint, depending on model. The difference is production-related and is not a defect. The state as produced must be restored.

2.4 Photo documentation of the reported paint damage according to the ŠKODA standard to create the DISS paint report

Basic requirements for photo documentation of reported paint damage

Note

- *Proper photo documentation is a basic requirement for the DISS paint report to be approved, reimbursement and processing of the complaint.*
- *The photo documentation must also be created if an analysis is required by the ŠKODA AUTO - TSC specialist on location by the dealer.*

– This group of mandatory photos must always be prepared, so that the photo documentation that is prepared is clear and always transparent for dealer and the manufacturer.

Vehicle identification number

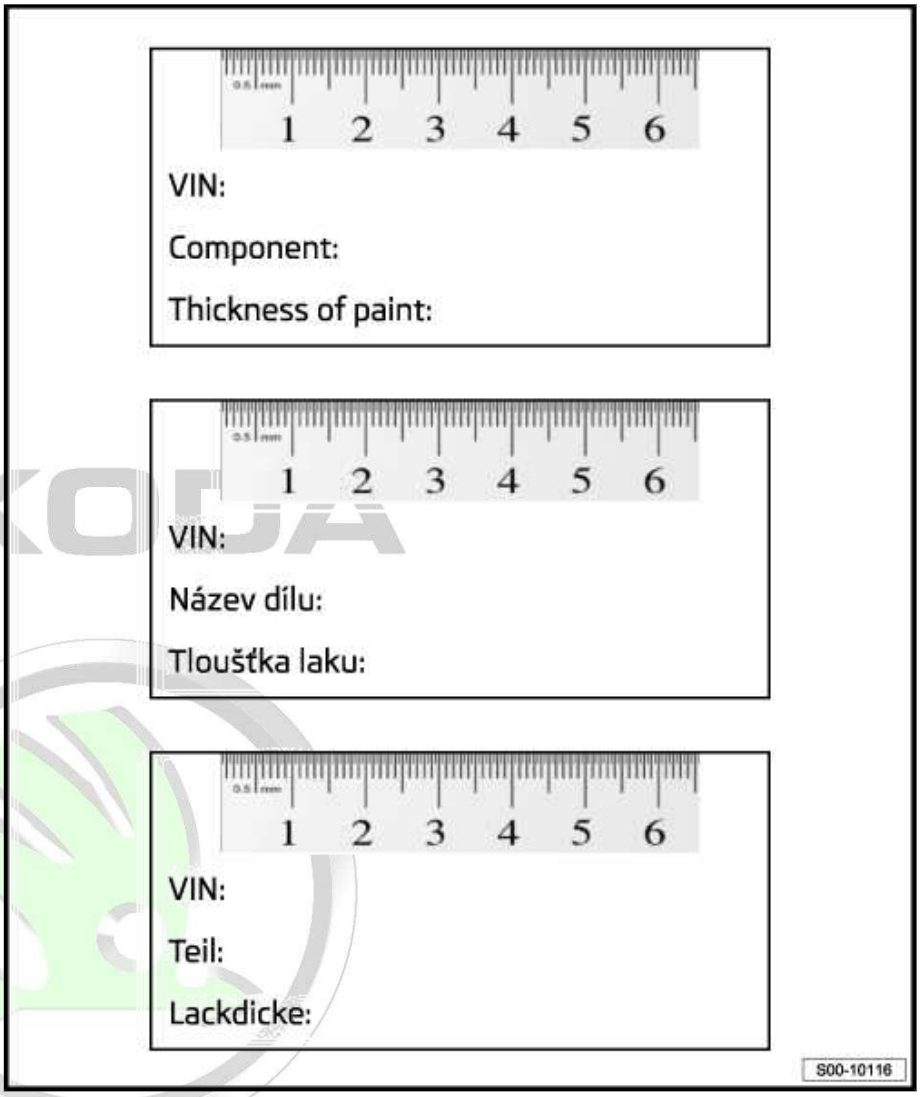
Mileage

General overview

Reported part with the damage marked

Detailed image of damage with attached -label with ruler-

Label with ruler



– Print photo at actual size (test dimensions of image frame: 132 x 157mm).
– Cut out -label with ruler-.

2.5 Work instructions for underseal and anti-chip coating

Note

- *For repair, the structure of the underseal and anti-chip coating must be restored to original thickness and appearance.*
- *Water drain holes must be left clear.*
- *All threaded bolts and weld nuts with M-thread and all other bolts and contact surfaces for assembly must be fully functional all along the seal.*

Damage following an accident (spare part replacement)

– Clean new part with silicone remover .
– Roughen the factory primer.
– Clean again with silicone remover .

– Apply e.g. 2K wash primer - LHV 043 000 A2- or -LLS MAX 230 M1- to sanded-through areas.
– Leave to dry (note drying time).
– Then filler with 2K HS performance filler .
– Leave to dry (note drying time).
– Dry filler and sand with sandpaper (P400-500), avoiding sanding through.
– Clean surface with silicone remover .
– Apply suitable anti-chip coating
⇒ “3.6 Protection against stones”, page 37 .
– Leave to dry (note drying time).
– Touch up/smooth structure slightly, if necessary.
– Clean substrate with silicone remover .
– Then filler with 2K HS performance filler .
– Leave to dry (note drying time).
– Dry and roughen filler.
– Clean surface with silicone remover .
– Then establish structure with base and clear coat.

Damage following an accident (repair)

– Thoroughly clean damaged component/surface.
– Remove undercoat with e.g. brush grinder - VAS 6446- or - VAS 6776- .
– Flatten damaged area and sand down to the blank metal.
– Remove any corrosion with e.g. brush grinder - VAS 6446- or -VAS 6776- , then fine-sand (P180-240).
– Clean substrate with silicone remover .
– Apply e.g. 2K wash primer - LHV 043 000 A2- or -LLS MAX 230 M1- .
– Leave to dry (note drying time).
– Then filler with 2K HS performance filler .
– Leave to dry (note drying time).
– Roughen with sandpaper (P320).
– Clean substrate with silicone remover .
– Apply suitable filling paste.
– Sand filling paste with sandpaper (P80-P240), thoroughly sanding transitions at the same time.
– Clean substrate with silicone remover .
– Apply e.g. 2K wash primer -LHV 043 000 A2- or -LLS MAX 230 M1- .
– Then filler with 2K HS performance filler .
– Leave to dry (note drying time).
– Roughen with sandpaper (P400-500).
– Clean surface with silicone remover .
– Apply suitable anti-chip coating
⇒ “3.6 Protection against stones”, page 37 .

- Touch up/smooth structure slightly, if necessary.
- Clean substrate with silicone remover .
- Then filler with 2K HS performance filler .
- Leave to dry (note drying time).
- Dry and roughen filler.
- Clean surface with silicone remover .
- Then establish structure with base and clear coat.

2.6 Instructions for repairing fold corrosion

Corrosion at the fold edges, e.g. on bonnet, door or rear lid

- Remove areas of corrosion with e.g.
  ⇒ “4.1.6 Pneumatic brush grinder set VAS 6446 or VAS 6776 ”, page 95 or
  ⇒ “4.1.7 Brush grinder set VAS 6776 ”, page 96 .
- Sand out transitions with sandpaper P360-P400.
- Clean substrate with silicone remover .
- After repairing corrosion and before sealing, the substrate must be insulated with 2K wash primer -LHV 043 000 A2- or -LLS MAX 230 M1- , then filled with 2K HS performance filler .
- After applied filler has dried, sand the filled area with sandpaper while dry (P400-500), avoiding “sanding through” in all cases. Then clean all sanded areas with silicone remover .
- The fold edges of the sheet metal must then be sealed All sheet overlaps must be sealed with sealing compound ⇒ “3.8 Sealant materials”, page 49 . The fine joint seal must be compared with the original conditions of the applicable vehicle.

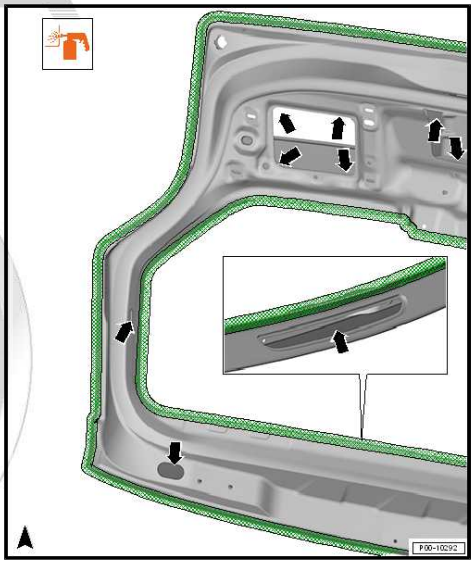
Note

- *For repair, the joint seal must be restored to its original thickness and appearance.*
- *To avoid damage and failures, the seal welds in the area of the assembly-specific add-on parts must be coated smoothly.*
- *Water drain holes must be left clear.*
- *All threaded bolts and weld nuts with M-thread and all other bolts and contact surfaces for assembly must be fully functional all along the seal.*
- *The sealant material must not be applied to bare sheet metal, but only on to filled substrates.*

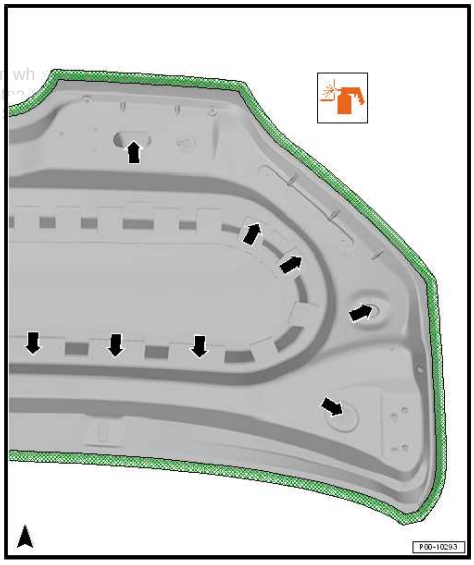
- The rest of the paintwork structure must be restored according to the manufacturer's specifications.

– Apply preservation coating around the edge of the fold area using e.g.
⇒ “4.1.8 Suction-feed spray gun V.A.G 1538 ”, page 97
(cavity) ⇒ “3.4 Preservation”, page 22 .

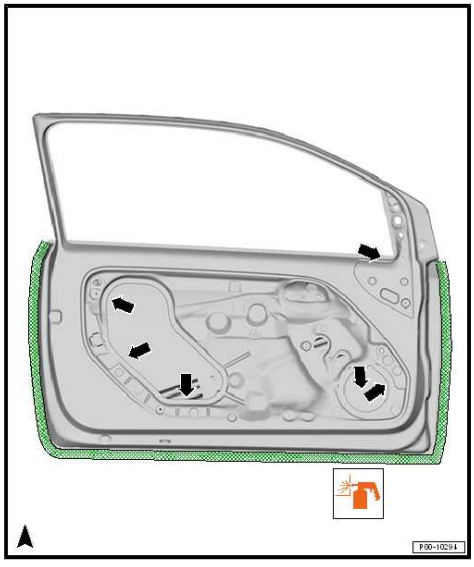
Area of cavity preservation on rear lid as example



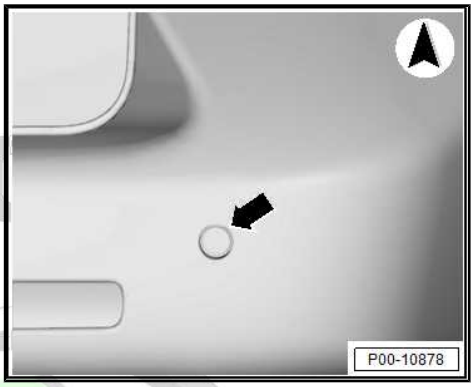
Area of cavity preservation on bonnet as example



Area of cavity preservation on a door as example



2.7 Painting the parking aid transmitter



To prevent malfunctions of the parking aid transmitter, the following parameters must be complied with when painting:

Painting a new part

- Maximum layer thickness: 125µm; you must measured the layer thickness after painting
- Maximum hardening temperature: 1 hour at 90°C

Painting an old part

- Only remove paint (sand) down to primer
- Minimum layer thickness of 5-10µm must be maintained
- Maximum layer thickness: 125µm
- Maximum hardening temperature: 1 hour at 90°C

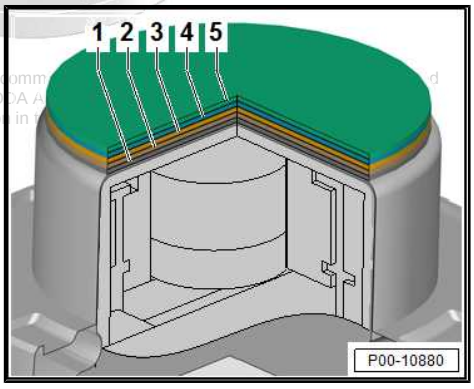
Electrical conductivity

- Paint or paint mist must not get into the plug.

Functional test:

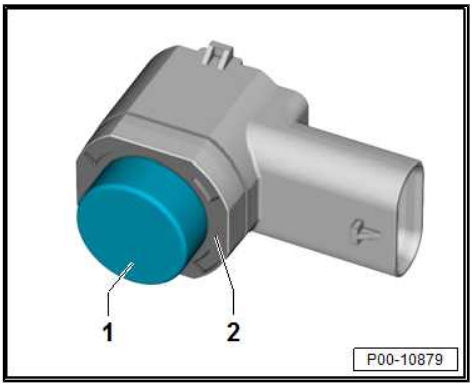
- Connect vehicle diagnosis tester and test function ⇒ Electrical System - general notes; Rep. gr. 97 ; Lines; vehicle diagnosis, measurement and information system .

Repair paintwork structure and layer thicknesses



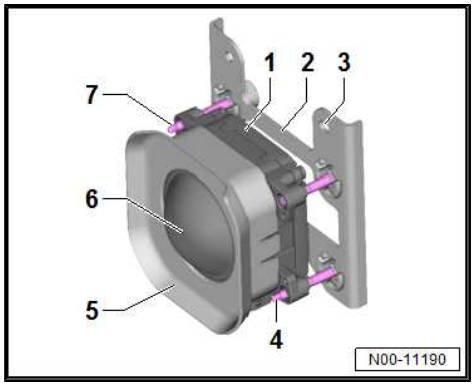
1 - Primed new part with spare part primer: 2 - 10 µm
2 - Filler: 30 - 40 µm
3 - Solid-finish base coat: 10 - 20 µm
4 - Metallic/pearl effect base coat: 20 - 15 µm
5 - Clear coat: 35 - 50 µm

Paint area



1 - The paint area of the sensors is the face and side surface of the membrane. The side surface is painted by at least 3mm to maximum 4mm from the face of the membrane to the rear.
2 - There must be no paint is this area.

2.8 Adaptive cruise control (ACC)



Note

- *For vehicles with ACC, the trim in the right cover part of the front bumper must not be painted when applying repair paint or replacement. The ACC system behind it may cease to function if the thickness of the paint layer increases.*
- *The cover of the transmitter for cruise control in the bumper trim grille is made of radar-permeable material. The cover can be heated to avoid functional impairment in case of snow or ice.*
- *All changes to the surface, such as subsequent painting, stickers and other items attached subsequently may cause malfunctions.*

Adaptive cruise control unit

The illustration shows the adaptive cruise control unit . This may be different for other vehicle models.

1 - Adapter plate

2 - Support

3 - Mounting hole

4 - Vertical adjustment screw

5 - Trim

6 - Transmitter for cruise control/adaptive cruise control unit

7 - Horizontal adjustment screw

3 Original products

3.1 Paint products for customer service

Note

- *ŠKODA AUTO notes that only ŠKODA AUTO original products or products from paint suppliers approved by the manufacturer can be used for warranty work and must be used according to the manufacturer's instructions. Only these products meet the requirements to maintain the paint warranty.*
- *In the case of paint claims for paint applications using products approved by the manufacturer from paint suppliers, warranty claims must be made to the applicable supplier of the paint materials (via the importer).*

3.2 Filler

3.2.1 2K steel filler set

Designation

- 2K steel filler set - DA 787 300 A2-

Product description

This filler is a polyester filler with a metal powder mixture for creating correctly contoured surfaces on highly stressed body areas. This filler is an especially good substitute for lead filling solder.

This filler is easy to apply and to sand, is very strong and heat-resistant, and so is especially suitable for overpainting.

Application instructions

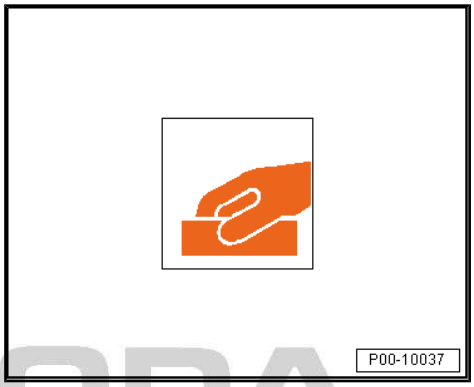
Base surface

Suitable base surfaces:

- Steel
- Metallic base surfaces in general
- Galvanised sheet steel

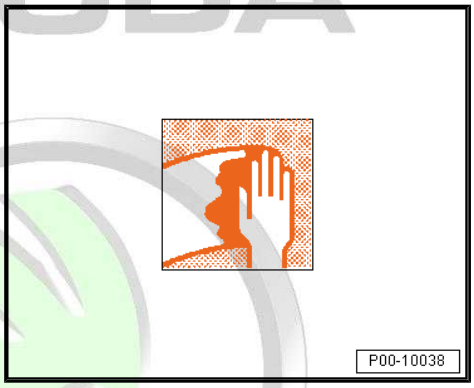
Preparing base surfaces:

– Thoroughly degrease and sand base surface. The substrates must be prepared with e.g. ⇒ “4.1.6 Pneumatic brush grinder set VAS 6446 or VAS 6776 ”, page 95 . This means down to the bare metal with grit P40.

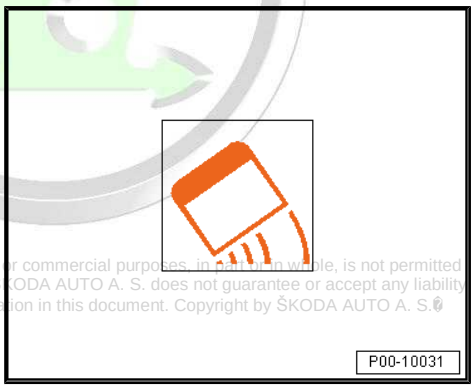


– Clean again with a silicone remover before working over.

Processing

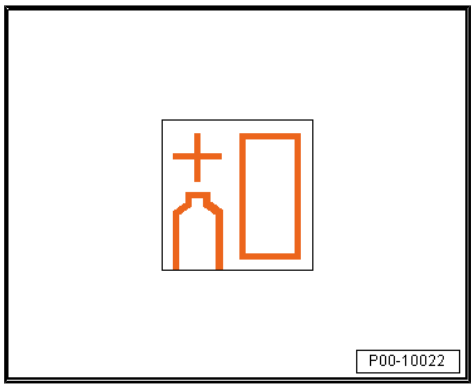


Filling



Mixing ratio

– The two components are mixed at a ratio of 1 part by volume liquid hardener to 2.5-3 parts by volume powder or 10 grams liquid hardener and 58 grams powder to make a suitable filler product.



Note

Avoid excessive liquid hardener as it will reduce the final strength and adhesive characteristics of the filler.

Processing time:

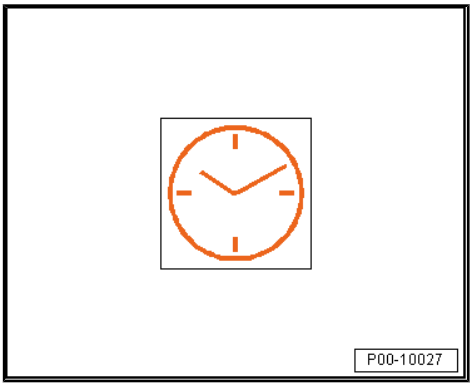
– Pot life is approx. 4-6 minutes at +20°C.

Reaction temperature:

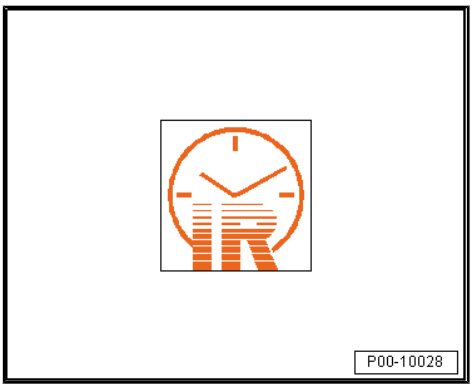
– The reaction temperature must be at least +5°C.

Drying

– Hardening with short-wave infrared heater



- Flash off for approx. 10 minutes at +20°C.
- Precure: 10 minutes at approx. 50°C
- 1st stage curing: 10 minutes at 75°C
- 2nd stage curing: 10 minutes at 85°C



Suitability for sanding:

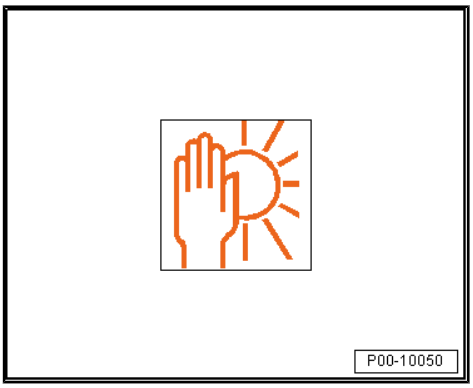
– Then sand with dry sandpaper (grit P80) to contour or use the body plane.

Storage

The guaranteed storage stability is 12 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.

Storage conditions

– Store in a cool and dry place. Storage temperature: +20°C.



Note

- *Process only in well ventilated spaces.*
- *You are advised to wear protective gloves and a dust mask.*
- *A sanding dust extraction system is recommended.*

3.2.2 2K diamond aluminium filler

Designation

- 2K diamond aluminium filler, powder - DA 004 200 A2-
- 2K diamond aluminium filler, hardener - DA 004 201 A1-
- 2K diamond aluminium filler, hardener - DA 004 211 A1-

Product description

This filler is a polyester filler for universal application, and is especially suited to aluminium sheet repairs.

It is designed for use in automobile repairs.

This filler is easy to apply and to sand, is very strong and heat-resistant

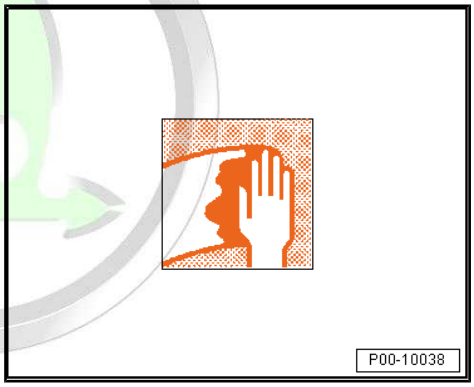
Application instructions

Suitable base surfaces:

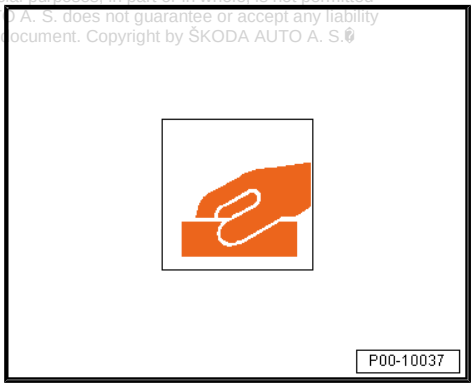
- ♦ Aluminium

Preparing base surfaces:

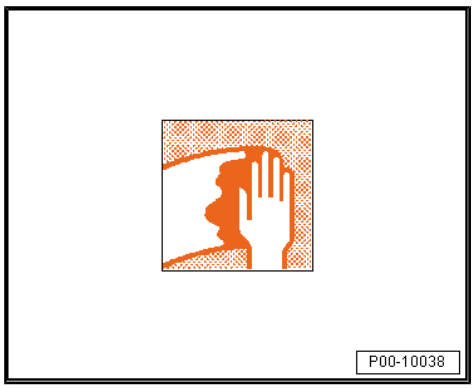
– Carefully degrease base surface.



– Carefully sand base surface.



– Carefully degrease base surface.

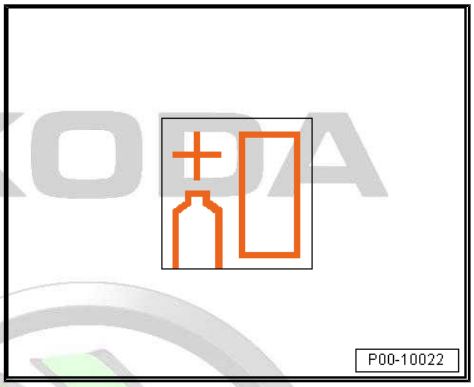


Mixing ratio:

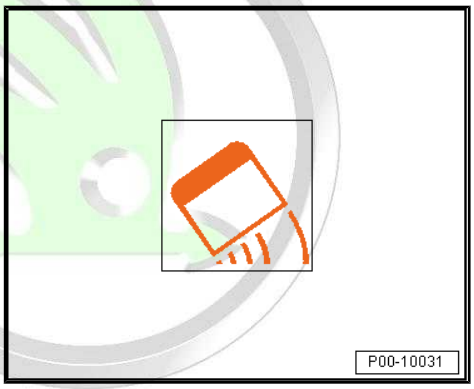
– The two components are mixed at a ratio of 1 part by volume liquid hardener to 2.5-3 parts by volume powder or 10 grams liquid hardener and 25 grams powder to make a suitable filler product.

Processing

Application:



– Filling



Note

Avoid excessive liquid hardener as it will reduce the final strength and adhesive characteristics of the filler.

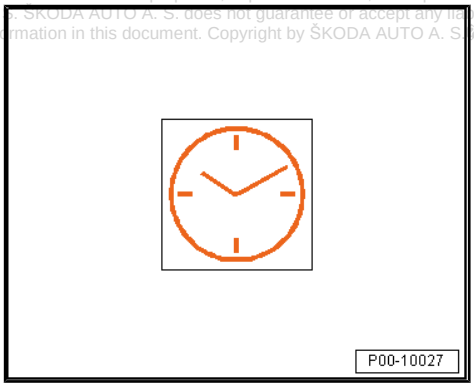
Processing time:

– The pot life is approx. 4-6 minutes at +20°C room temperature.

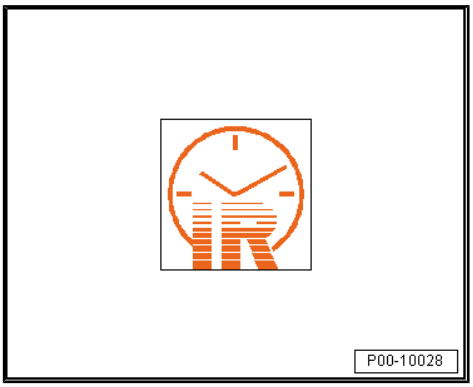
Reaction temperature:

– at least +5 °C

Drying

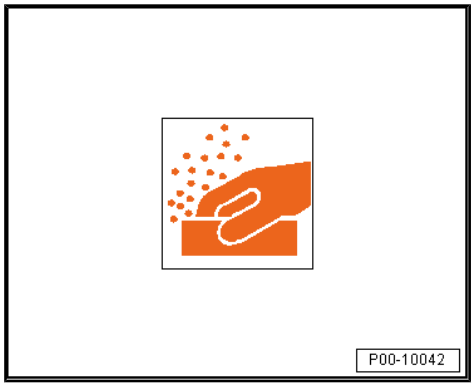


– Flash off for approx. 10 minutes
– Hardening with short-wave infrared heater
♦ Precure: 10 minutes at 50°C
♦ 1st stage curing: 10 minutes at 75°C
♦ 2nd stage curing: 10 minutes at 85°C



Suitability for sanding:

– Then sand with dry sandpaper (grit P80) to contour or use the body plane.



Note

- *Only process in a well-ventilated space.*
- *You are advised to wear protective gloves and a dust mask.*
- *A sanding dust extraction system is recommended.*

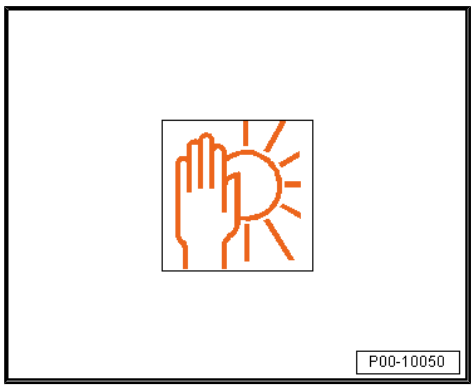
Storage

The guaranteed storage stability is 12 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.

Storage conditions

– Store in a cool and dry place.

– Storage temperature: +20°C.



3.3 Corrosion prevention

⇒ “3.3.1 2K wash primer”, page 18

3.3.1 2K wash primer

Designation

- 2K wash primer - LHV 043 000 A2-

Product description

This 2K wash primer is a zinc chromate- and phenol-free acid-hardening two-component wash primer.

- Outstanding corrosion protection based on its passivating characteristics
- For metallic substrates, in particular aluminium and galvanised steel sheets
- Easy to process
- Shade: Olive grey

Application instructions

Base surface

Suitable base surfaces:

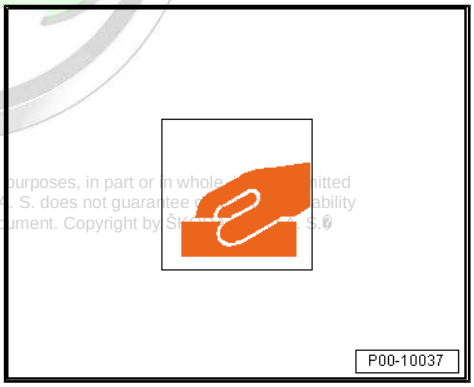
- Bare sheet steel, cleaned and sanded
- Cleaned and sanded galvanised or electroplated steel panels or soft aluminium
- Sanded factory primer

- Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- Surfaces prepared with 2K polyester products and then finely sanded

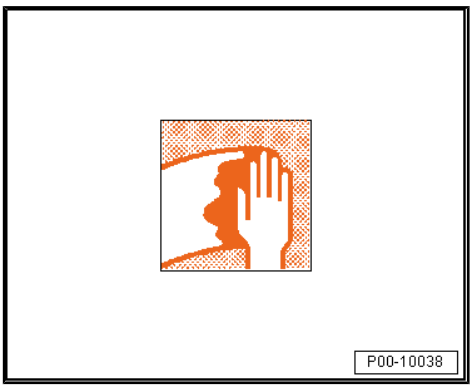
Preparing base surfaces:

– Clean carefully with silicone remover .

– Clean and sand factory paint or old paint, completely remove any rust spots and spot-sand the transitions to the old paint.



– Use a suitable cleaning agent to ensure a clean, residue-free surface prior to reworking.



Mixing ratio:

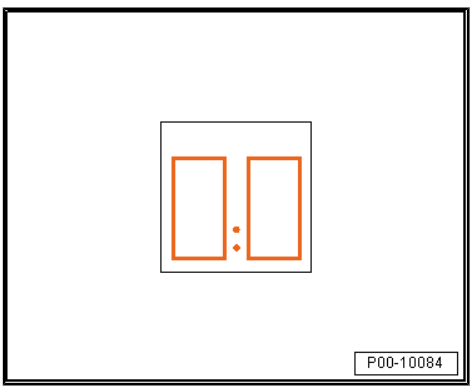
– 1:1 by volume with 2K additive solution - LHA 004 000 A2-

Processing time:

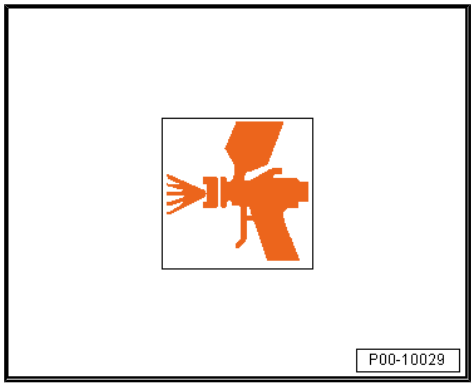
– Ready-to-spray preparation: 8-10 hours at +20°C

Note

Material must be mixed and applied on the same day.



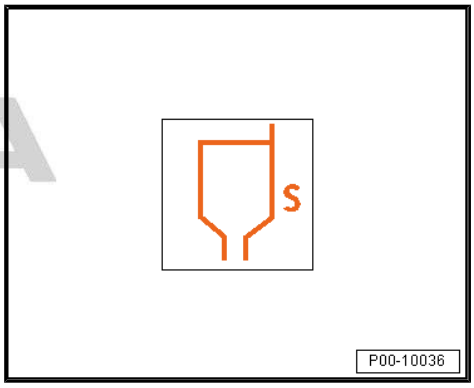
Application “Spray application”



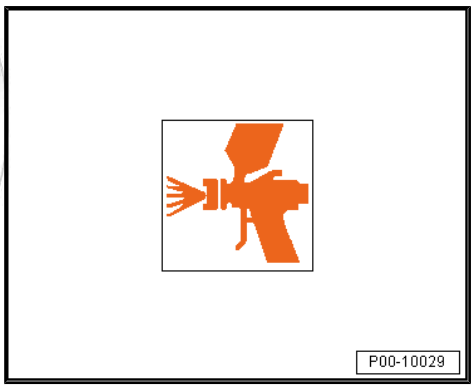
– Processing viscosity: 4mm at +20°C, DIN 53211

Processing viscosity: 4 mm “Compliant” and “HVLP” gravity feed spray gun:

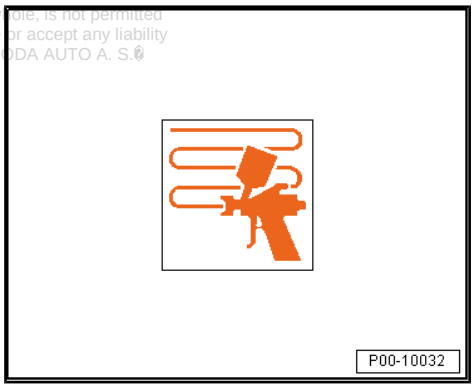
DIN 4 mm: 16-18 seconds



– Spray nozzle (see manufacturer's instructions): “Compliant” 1.2 - 1.4 mm.
– Spray nozzle (see manufacturer's instructions): “HVLP” 1.3 - 1.5 mm.
– Spraying pressure (see manufacturer's instructions): “Compliant” 2.0 - 2.5 bar.
– Atomising pressure (see manufacturer's instructions): “HVLP” 0.7 bar.



– The specified layer thickness is 8-12 µm.

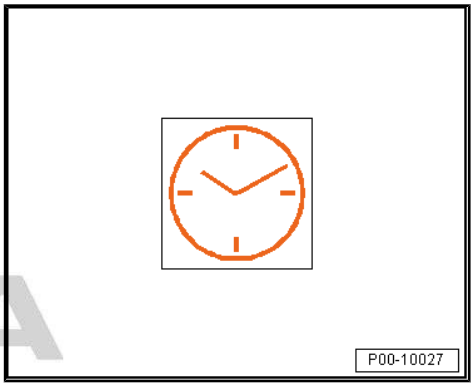


Drying

Air drying at +20°C room temperature, can be over-sprayed after 30 minutes

Caution

Forced drying and infrared drying are not possible, because they cause issues with intercoat adhesion.



Working over

After the flash-off time at +20°C, can be over-sprayed with 2K HS filler.

Then can be overpainted with:

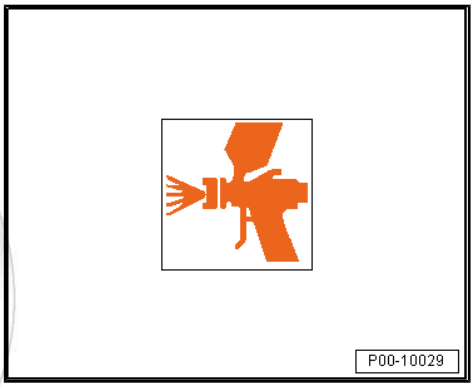
- Water-based base coat
- 2K HS top coat

Caution

Do not use with polyester, epoxy or water-thinnable products for subsequent processing.

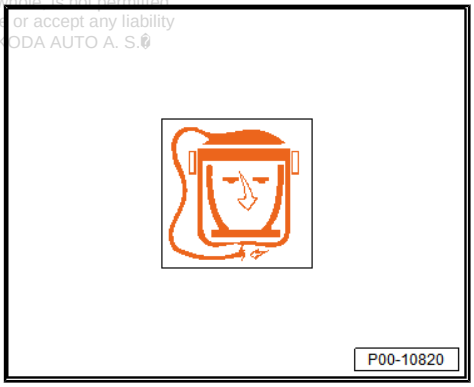
Do not use on thermoplastic paintwork.

Do not rework directly with water-based base coat or 2K HS top coat.



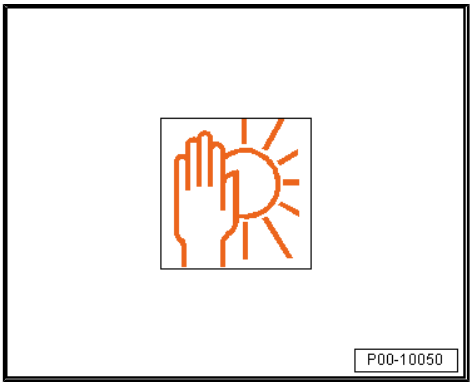
Personal protective equipment:

- Comply with the safety datasheet
- Wear personal protective equipment during the application process



Storage

The guaranteed storage stability is 24 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.4 Preservation

⇒ “3.4.1 Preservative wax”, page 22

⇒ “3.4.2 Cavity preservation agent”, page 23

⇒ “3.4.3 Preservative wax (spray can)”, page 26

3.4.1 Preservative wax

Designation

- Preservative wax - AKR 321 M15 4-
- Preservative wax - AKR 321 M16 10-

Product description

Preservative wax - AKR 321 M15 4- and preservative wax - AKR 321 M16 10- is a sprayable, wax-based rust corrosion inhibitor.

When dry it forms an adhesive, flexible, tear and water-resistant film that is virtually colourless.

Because the drip point of the dried material is above 100°C, no running or dripping is to be anticipated, even within the engine compartment.

The dry film bonds securely to bare and painted sheet metal.

Application instructions

Application

- Used as preservation for automotive seams, surfaces and cavities.
- Its light colour makes it especially suitable for protecting seams on the bonnet and in the luggage compartment.
- This material is also a favoured product for treating cleaned engine compartments.

Processing

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

– Before being treated, the parts should be thoroughly cleaned and dried, and rust should be removed.

– Shake can before use. Spray on preservative wax and allow to dry. The product should not be sprayed onto visible external surfaces, as the dry layer produces a dull effect.

Caution

When this wax protectant is applied to engine compartments in motor vehicles and engines in other devices, the engines should not be started until the wax has thoroughly aired. There is a risk that the evaporating solvent will explode!

Technical data

Colour	Transparent in thin layers
Odour	Mild odour
Viscosity (DIN 53211, 4mm)	12 - 14 s
Drip point	approx. 100 ℃
Cleaning	with white spirit, cold cleaner or paraffin
Processing temperature	+15 ℃ to +30 ℃

3.4.2 Cavity preservation agent

Designation

- Cavity preservation agent - D 330 KD1 A2-
- Cavity preservation agent - D 330 KD2 A1-

Product description

Cavity preservation agent - D 330 KD1 A2- and cavity preservation agent - D 330 KD2 A1- is a solvent-containing anti-corrosion agent for sealing cavities and enclosed areas with a high solid content.

It is available as a thoroughly dispersed thixotropic solution designed to provide optimal protection in areas that are difficult to access and narrow areas between sheet-metal surfaces.

The cavity preservation agent penetrates and disperses moisture; it contains a high proportion of rust inhibitors.

The cavity preservation agent forms a finely-dispersed spray plume during application, it has extremely good penetrating ability, allowing it to penetrate into the cavities (such as weld joints) being protected, (e.g.: weld joints) while still displaying no serious tendency to drip from underlying seams.

Although this material can be applied at any temperature above 10°C, the penetrating ability is improved if both product and body are allowed to stabilise at “room temperature”.

After curing, the material forms a flexible, water-resistant film, transparent beige in colour.

Application instructions

Application

- Primarily used at the workshop to spray cavities, to complement existing cavity protection treatment on new vehicles, to post-treat cavity protection treatments and after repairs following accidents.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing the cavity preservation agent - D 330 KD1 A2-

- The cavity preservation agent - D 330 KD1 A2- is easy to apply using the suction-feed spray gun and the appropriate probe attachments.
- The application pressure with the suction-feed spray gun is 5-6 bar. The material pressure governor should be set to 5 bar.
- If stored for longer periods or at temperatures under +10 °C, the material becomes more thixotropic. However, it becomes less thixotropic again during spraying at normal application temperatures. The product displays its usual properties after spraying.

Note

Depending upon the type of cavity being treated, the drying process may extend over a number of days. Adequate ventilation should be provided during drying.

Processing the cavity preservation agent - D 330 KD2 A1-

- Trim panels and components should be removed when possible. Any rust should be removed as thoroughly as possible.
- The tube-equipped spray attachment in the cap is installed to reach areas that are difficult to access (semi-cavities in doors, etc.).
- The material should be at room temperature for application.
- If stored for longer periods or at temperatures under +10 °C, the material becomes more thixotropic. This is why it is important to shake the can vigorously before use, with the agitator ball audible within the can.
- With the can held upright, an even layer is sprayed onto the dust and grease-free body part.
- When the “applicator tube” is being used, it can be slowly rotated in all directions during the spray application.
- The applicator with its circular nozzle pattern allows finely dispersed and even application on surfaces such as vehicle floor panels, and thereby restores a flawless appearance.

Note

The cavity preservation agent - D 330 KD2 A1- is a product that contains flammable propellant. You must ensure that cavities are ventilated before they are closed again (e.g. door trims) and that the whole vehicle is ventilated during the drying phase. Depending upon the type of cavity being treated, the drying process may extend over a number of days.

Caution

Functional parts, such as brake and exhaust systems, must not be sprayed!

Rubber and plastic parts should also not be sprayed.

Cleaning

- Escaping drips of preservation agent can easily be wiped away.

- The plastic cleaner - D 195 850 A1- , for example, is suitable for cleaning the material when it has dried on to surfaces.
- Larger areas can be cleaned with the steam cleaner. Splashes on painted surfaces should be removed immediately.

Technical data for the cavity preservation agent - D 330 KD1 A2-

Colour	Transparent beige
Odour	Typical, distinctive odour
Solid matter content	approx. 60 % (active ingredient)
Consistency	Thixotropic
Durability	min. 100 µm
Suitability for use with top coats	No permanent changes in the paint
Can be removed after 24 hours	Dried material can be easily removed
Properties in drying oven (1.5 h at 90 ° C)	No dripping
Resistance to cold	No cracking
Resistance to corrosion	No corrosion
Processing temperature	+10 °C to +25 °C
Application temperature	-40 °C to +90 °C

Technical data for the cavity preservation agent - D 330 KD2 A1-

Colour	Transparent beige (almost transparent)
Odour	Typical, distinctive odour
Solid matter content	approx. 60 % (active ingredient)
Drip point of solid	approx. 150 °C
Consistency	Thixotropic
Durability	min. 100 µm
Penetration	>16 cm
Suitability for use with top coats	No permanent changes in the paint
Can be removed after 24 hours	Dried material can be easily removed
Properties in drying oven (1.5 h at 90 ° C)	No dripping
Resistance to cold	No cracking
Resistance to corrosion	No corrosion
Processing temperature	+10 °C to +25 °C

Application temperature	-40 °C to +90 °C (+120 °C for short periods up to 1 hour)

3.4.3 Preservative wax (spray can)

Designation

- Preservative wax - D 308 SP5 A1-

Product description

The preservative wax - D 308 SP5 A1- provides optimal corrosion protection for corrosion-susceptible areas on bodywork such as double panels (folds, gaps, flanges), edges and surfaces.

This long-life corrosion protection has very good penetration qualities and excellent adhesion to metallic surfaces.

It is suitable for applying to and removing from the top coat and is also compatible with rubber and plastic components.

Application instructions

Application

- The recommended dry layer thickness is approx. 30 µm.

Technical data

Propane-butane content	45 - 49 %
Active ingredient content	22 - 26 %
Solvent content	27 - 31 %
Viscosity (DIN 53211, 4mm)	16 - 22 s
Drip point (of solid)	> 150 °C
Cleaning	with white spirit
Processing temperature	+18 °C to +25 °C
Flash point PM (DIN EN 22719)	+27 to +33 °C
Colour	Light beige
Application temperature	+10 °C to +30 °C
Resistance to cold	up to -30 °C

3.5 Underseal

⇒ “3.5.1 Long-life underseal D 314 D36 M2 grey”, page 26

⇒ “3.5.2 Long-life underseal D 314 D37 M2 black”, page 29

⇒ “3.5.3 Long-life underseal D 314 D38 M2 light”, page 32

3.5.1 Long-life underseal - D 314 D36 M2- grey

Designation

- Long-life underseal - D 314 D36 M2- grey

Product description for long-life underseal - D 314 D36 M2- grey

The long-life underseal - D 314 D36 M2- is a grey coating compound based on an aqueous polymer dispersion, which is sprayed on using a UBS spray gun.

Drying time depends on the coat thickness as well as the ambient temperature and humidity. Good ventilation and higher temperatures accelerate drying.

The dried film adheres well to galvanised or CDP coated sheet metal as well as painted base surfaces. Due to the great resistance to abrasion and flexibility under cold conditions, the long-life underseal exhibits excellent stone chip protection.

The long-life underseal can be quickly overpainted with water-based paints after a short time.

After air drying (approx. 2-3 hours), the material can be overpainted with conventional (solvent-based) paint systems as well.

The dried coating can be easily sanded once it is fully hardened.

The long-life underseal is suitable for restoring the original structure following repairs.

The material is only temporarily resistant to spirit and cold cleaners.

Application

- The long-life underseal - D 314 D36 M2- is suitable for repairing underbodies, wheel housings, and front and rear ends and can be applied to visible parts such as side rails, as paintable protection against stone chipping, road salt and corrosion due to moisture.
- The material is suitable for restoring various surface structures following repairs to all types of vehicle.
- The long-life underseal is also suitable for sound absorption in boots, on bonnets, wheel arches and side walls, as well as to cover and seal repair points, weld seams and overlappings.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- The surfaces to be treated must be cleaned thoroughly beforehand, and any rust must be removed.
- The surfaces must be dry and free of dirt, dust and grease.
- Areas not to be coated should be masked with tape.
- Bare steel surfaces must be primed before application of long-life underseal.
- The long-life underseal is applied from a 1 litre can using a UBS spray gun. The processing pressure is 4-5 bar.
- The can contents must be shaken vigorously for one minute before use.

Caution

Do not spray onto joints, engine, gearbox, propshaft, exhaust, catalytic converter or brake systems.

The UBS spray gun must be sprayed empty and then flushed with plastic cleaner - D 195 850 A1- .

A blocked gun may cause the can to explode!

You must following the operating instructions for the UBS spray gun!

Overpainting

Note

The long-life underseal can be overpainted with water-based base coats. As there are many systems on the market, tests must be performed.

1 - Overpainting with water-thinnable paints:

– The long-life underseal can be overpainted with water-thinnable paints after a short initial drying period (matt surface) and up to 72 hours after application.

2 - Overpainting with conventional (solvent-containing) paints:

– The long-life underseal can be overpainted with conventional (solvent-containing) paints after through drying and up to 72 hours after application. The material is a fast-drying thick-coat system. When accelerating drying with forced air, ensure that the fast-developed skin is not blown away over the still-wet material on which it is floating. This may cause cracks to form.

Cleaning

- Splashes on painted surfaces should be removed immediately with plastic cleaner - D 195 850 A1- .
- Equipment and soiled parts must be cleaned with water immediately after application, if necessary using a water-based cleaning agent. Do not use any solvent-based cleaning agents, as they cause coagulation. After drying, long-life underseal can only be removed mechanically.

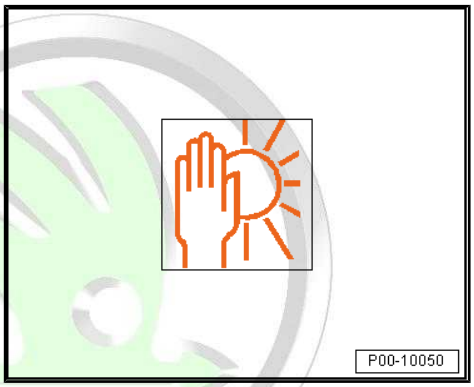
Technical data

Technical data:	
Colour	grey
Odour	Slight ammonia odour
Density	approx. 1.22 g/cm³
Solid matter content	approx. 67 %
Viscosity: Measuring instrument Measurement system	0.5 Pas Physica Z 4
Wet layer thickness	1 mm

Thinner/ cleaning agent	Distilled water
Processing temperature	+10 °C to +25 °C
Application temperature	-25 °C to +80 °C (+100 °C for short periods up to 1 hour)
Acoustic data:	
Loss factor DIN 53440	approx. 0.10
Temperature	20 °C
Frequency	200 Hz
Material	Steel sheet, 1 mm
Thickness ratio of coating to sheet	2:1

Storage

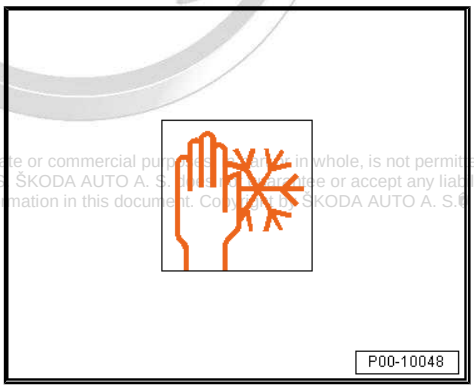
The guaranteed storage stability is 12 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



Storage conditions

The recommended storage temperature for the long-life underseal is +10 °C to 25 °C.

The long-life underseal is susceptible to frost, so the temperature must not fall below +5 °C.



3.5.2 Long-life underseal - D 314 D37 M2- black

Designation

- Long-life underseal - D 314 D37 M2- black

Product description for long-life underseal - D 314 D37 M2- black

The long-life underseal - D 314 D367 M2- is a black coating compound based on an aqueous polymer dispersion, which is sprayed on using a UBS spray gun.

Drying time depends on the coat thickness as well as the ambient temperature and humidity. Good ventilation and higher temperatures accelerate drying.

The dried film adheres well to galvanised or CDP coated sheet metal as well as painted base surfaces. Due to the great resist-

ance to abrasion and flexibility under cold conditions, the long-life underseal exhibits excellent stone chip protection.

The long-life underseal can be quickly overpainted with water-based paints after a short time.

After air drying (approx. 2-3 hours), the material can be overpainted with conventional (solvent-based) paint systems as well.

The dried coating can be easily sanded once it is fully hardened.

The long-life underseal is suitable for restoring the original structure following repairs.

The material is only temporarily resistant to spirit and cold cleaners.

Application

- The long-life underseal - D 314 D37 M2- is suitable for repairing underbodies, wheel housings, and front and rear ends and can be applied to visible parts such as side rails, as paintable protection against stone chipping, road salt and corrosion due to moisture.
- The material is suitable for restoring various surface structures following repairs to all types of vehicle.
- The long-life underseal is also suitable for sound absorption in boots, on bonnets, wheel arches and side walls, as well as to cover and seal repair points, weld seams and overlappings.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- The surfaces to be treated must be cleaned thoroughly beforehand, and any rust must be removed.
- The surfaces must be dry and free of dirt, dust and grease.
- Any surfaces that are not being coated should be masked with masking paper.
- Bare steel surfaces must be primed before application of long-life underseal.
- The long-life underseal is applied from a 1 litre can using a UBS spray gun. The processing pressure is 4-5 bar.
- The can contents must be shaken vigorously for one minute before use.

Caution

Do not spray onto joints, engine, gearbox, propshaft, exhaust, catalytic converter or brake systems.

The UBS spray gun must be sprayed empty and then flushed with plastic cleaner - D 195 850 A1- .

A blocked gun may cause the can to explode!

You must following the operating instructions for the UBS spray gun!

Overpainting

Note

The long-life underseal can be overpainted using water-based and solvent-containing paints. As there are many systems on the market, tests must be performed.

1 - Overpainting with water-thinnable paints:

– The long-life underseal can be overpainted with water-thinnable paints after a short initial drying period (matt surface) and up to 72 hours after application.

2 - Overpainting with conventional (solvent-containing) paints:

– The long-life underseal can be overpainted with conventional (solvent-containing) paints after through drying and up to 72 hours after application. The material is a fast-drying thick-coat system. When accelerating drying with forced air, ensure that the fast-developed skin is not blown away over the still-wet material on which it is floating. This may cause cracks to form.

Cleaning

- Splashes on painted surfaces should be removed immediately with plastic cleaner - D 195 850 A1- .
- Equipment and soiled parts must be cleaned with water immediately after application, if necessary using a water-based cleaning agent. Do not use any solvent-based cleaning agents, as they cause coagulation. After drying, long-life underseal can only be removed mechanically.

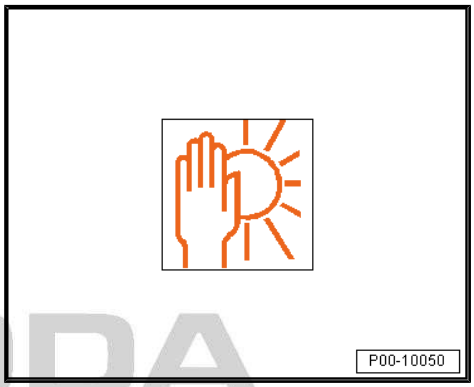
Technical data

Technical data:	
Colour	black
Odour	Slight ammonia odour
Density	approx. 1.22 g/cm³
Solid matter content	approx. 67 %
Viscosity: Measuring instrument Measurement system	0.5 Pas Physica Z 4
Wet layer thickness	1 mm

Thinner/ cleaning agent	Distilled water
Processing temperature	+10 ℃ to +25 ℃
Application temperature	-25 °C to +80 °C (+100 °C for short periods up to 1 hour)
Acoustic data:	
Loss factor DIN 53440	approx. 0.10
Temperature	20 ℃
Frequency	200 Hz
Material	Steel sheet, 1 mm
Thickness ratio of coating to sheet	2:1

Storage

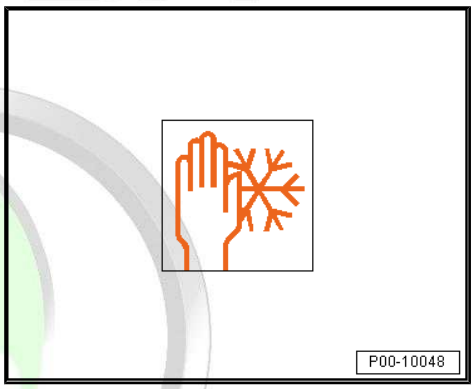
The guaranteed storage stability is 12 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



Storage conditions

The recommended storage temperature for the long-life underseal is +10 °C to 25 °C.

The long-life underseal is susceptible to frost, so the temperature must not fall below +5 °C.



3.5.3 Long-life underseal - D 314 D38 M2- light

Designation

- Long-life underseal - D 314 D38 M2- light

Product description

The long-life underseal - D 314 D38 M2- is a light transparent i.e. translucent non-opaque coating compound based on an aqueous polymer dispersion, which is sprayed on using a UBS paint or filler gun.

Drying time depends on the coat thickness as well as the ambient temperature and humidity. Good ventilation and higher temperatures accelerate drying.

The dried film adheres well to galvanised or CDP coated sheet metal as well as painted base surfaces. Due to the great resist-

ance to abrasion and flexibility under cold conditions, the long-life underseal exhibits excellent stone chip protection.

The long-life underseal can be quickly worked on or overpainted with water-based paints.

After air drying (approx. 2-3 hours), the material can be overpainted with conventional (solvent-based) paint systems as well.

The long-life underseal may be pigmented and mixed with water-based paints and may be thinned with demineralised water. When adding pigment, up to 30% by volume ready-to-spray water-based paint may be added.

The mixing ratio, spray pressure and spray distance may be varied to achieve smooth surfaces or fine or coarse structures.

The material is only temporarily resistant to spirit and cold cleaners.

Application

- ♦ The long-life underseal - D 314 D38 M2- is suitable for repairing underbodies, wheel housings, and front and rear ends and can be applied to visible parts such as side rails, as paintable protection against stone chipping, road salt and corrosion due to moisture.
- ♦ The material is suitable for restoring various surface structures following repairs to all types of vehicle.
- ♦ A particular advantage is the ability to colour the material. Any scratches and stone impacts are therefore almost invisible.

Note

- ♦ *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- ♦ *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- ♦ The surfaces to be treated must be cleaned thoroughly beforehand, and any rust must be removed.
- ♦ The surfaces must be dry and free of dirt, dust and grease.
- ♦ Any surfaces that are not being coated should be masked with masking paper.
- ♦ Bare steel surfaces must be primed before application of long-life underseal.
- ♦ The long-life underseal may be applied to all common sealing materials except silicone and exhibits good adhesion.
- ♦ Sealants containing softeners may cause the surface of long-life underseal to soften or exhibit slight stickiness. However, the material will not lose its adhesive property as a result.
- ♦ Shake the can thoroughly before use.
- ♦ The long-life underseal must be applied with rust-proof filler guns or paint guns. The material may be thinned with up to 10% by volume distilled or demineralised water to achieve the necessary viscosity.
- ♦ The first coat should not be applied too heavily (12 coat).

- The long-life underseal can be mixed with up to 30% by volume ready-to-spray water-based paints.
- To recreate common structures, best results will be achieved with 10-15% ready-to-spray paint mixture.
- The material should be filtered through a paint sieve before application.

Caution

Do not spray onto joints, engine, gearbox, propshaft, exhaust, catalytic converter or brake systems.

The UBS spray gun must be sprayed empty and then flushed with plastic cleaner - D 195 850 A1- .

A blocked gun may cause the can to explode!

You must following the operating instructions for the UBS spray gun!

Overpainting

Note

The long-life underseal can be overpainted using water-based and solvent-containing paints. As there are many systems on the market, tests must be performed.

1 - Overpainting with water-thinnable paints:

– The long-life underseal can be overpainted with water-thinnable paints after a short initial drying period (matt surface) and up to 72 hours after application.

2 - Overpainting with conventional (solvent-containing) paints:

– The long-life underseal can be overpainted with conventional (solvent-containing) paints after through drying and up to 72 hours after application. The material is a fast-drying thick-coat system. When accelerating drying with forced air, ensure that the fast-developed skin is not blown away over the still-wet material on which it is floating. This may cause cracks to form.

Cleaning

- Splashes on painted surfaces should be removed immediately with plastic cleaner - D 195 850 A1- .
- Equipment and soiled parts must be cleaned with water immediately after application, if necessary using a water-based cleaning agent. Do not use any solvent-based cleaning agents, as they cause coagulation. After drying, long-life underseal can only be removed mechanically.

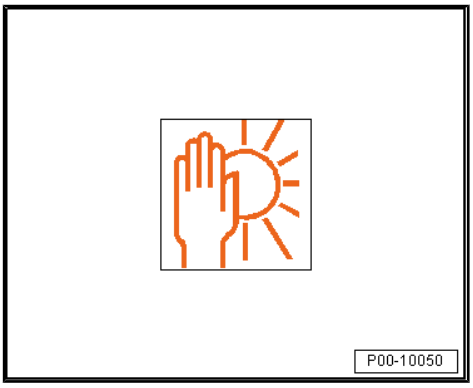
Technical data

Technical data:	
Colour	Whitish, not opaque
Odour	Slight ammonia odour
Density	approx. 1.25 g/cm³
Solid matter content	approx. 70 %
Viscosity: Measuring instrument	1 Pas Rheomat STV

Measurement system Speed	Rotor 30 200 rpm
Durability	up to 1 mm when wet
Processing temperature	+10 °C to +25 °C
Application temperature	-25 °C to +80 °C (+100 °C for short periods up to 1 hour)

Storage

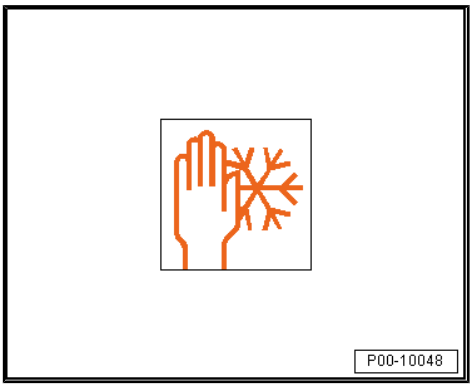
The guaranteed storage stability is 12 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



Storage conditions

The recommended storage temperature for the long-life underseal is +10 °C to 25 °C.

The long-life underseal is susceptible to frost, so the temperature must not fall below +5 °C.



3.5.4 Underseal - D 314 D39 A3- black

This underseal provides active corrosion protection, good adhesion, good edge protection, optimum substrate wetting and high coverage, as well as being easy to apply. It can also be used successfully on substrates with rust film and on manually derusted substrates; it then penetrates and prevents further rusting.

As supplied for painting and rolling; can be sprayed with every system after adding thinner. Can be processed between +5 and 30 °C; single component. Dries in air; do not dry with forced heat. Touch-dry after approx. 30 minutes; can be worked over, including with itself, at any time without sanding.

Can be used directly on steel, aluminium, stainless steel, zinc-coated metal sheets and other materials (particularly suitable for composites); adheres to solid old paint and primer coatings. Rusty areas or parts must be derusted carefully (by hand) so that the substrate is solid; in the case of coarse surfaces, ensure in particular that the layers are adequately thick.

Application:

The underseal -D 314 D39 A3- can be applied to a range of substrates and is robust when applied and is therefore particularly suitable for repairs. This high-solid material is solvent-containing (VOC compliant) and must not be thinned with water.

Caution

Identify the safety measures using the warning instructions on the label (and on the safety datasheet, if applicable), e.g. keep away from sources of ignition, ventilate.

Processing:

– Clean the areas to be treated.

– Remove rust as much as possible. Areas not to be coated should be masked off, if necessary.

– Apply underseal. Make sure that enough material is applied to critical areas (angles, edges, holes, weld seams etc.).

If necessary, apply to critical areas first or (at any time) work over them again.

Can be used on all typical sealing materials (except silicone). The surface of the underseal may remain sticky on sealing materials that contain softener (which should not be worked over with 1K materials). In general, it is better to apply the underseal first (corrosion protection, adhesion) and then the sealing materials.

Note

- *Shake the can contents well before use. This is important in particular because it is not as obvious for the "black" colour.*
- *Paint/roller in supplied form. For spraying, thing with 0-10 %, depending on procedure.*
- *This coating material cannot be sanded for a long time after it is applied (thermoplastic). Cut off any undesirable surface irregularities with a sharp knife.*

Overpainting:

After drying, can be overpainted as required with 1K or 2K paints. The solvents (also in water-based paint) slightly soften the surface, so that the connection is perfect. In case of doubt, perform tests first.

Cleaning:

Standard workshop cleaning agents are suitable.

Storage:

Frost is not a problem. High temperatures for extended periods shorten the storage stability.

Once the minimum use by date has passed (label on bottom of can), it may need to be mixed more carefully, the material thickness over time (and should be slightly thinned), and the drying time increases. Only if the material is homogeneous after stirring should is still be used.

If a skin forms, remove the skin, do not mix it in.

3.6 Protection against stones

⇒ "3.6.1 Protection against stones AKR 311 KD1 05 ", page 37

⇒ "3.6.2 Protection against stones AKR 311 KD1 10 ", page 38

3.6.1 Protection against stones - AKR 311 KD1 05-

Designation

- Anti-chip coating - AKR 311 KD1 05- black

Product description

The anti-chip coating - AKR 311 KD1 05- is a finely atomising coating compound based on synthetic resin.

The dried film bonds very well to cleaned substrates as well as to bare and painted sheet metal.

It provides high coverage, good corrosion protection, great resistance to abrasion and therefore also good anti-chipping properties.

The quick-drying anti-chip coating spray can be overpainted with standard vehicle painting systems after just approx. 7 minutes.

Furnace drying is also possible at approx. 60 °C with good results.

Exceptional mechanical loads (e.g. car wash) must be avoided in the first few weeks.

The paint manufacturer's specifications must also ordinarily be followed for the mechanical performance under load of the overpainted surface.

Application instructions

Application

- The anti-chip coating - AKR 311 KD1 05- is suitable for repairing visible parts such as front and rear spoilers and door sills, as protection against stone chipping, road salt and corrosion due to moisture that can be overpainted after a short time.
- The material is also used to complement anti-chip coatings, for minor work and for reworking after repairs following accidents.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- The surfaces to be treated with anti-chip coating must be cleaned thoroughly beforehand, and any rust must be removed.
- The surfaces must be dry and free of dirt, dust and grease.
- The material should be at room temperature for application.

- Shake the can vigorously. When the agitator ball is audible, shake approx. 1 minute more.
- With the can held upright, spray at a distance of approx. 20-30 cm.
- If areas were masked off before spraying, the masking must always be removed before drying.
- The resistance to abrasion and corrosion increase the thicker the coat. The spraying procedures should therefore be repeated once or twice after a short flash-off time.
- To avoid spray shadows, spray crosswise and lengthwise.
- After use, the can with valve should be held pointing downwards and the valve should be sprayed empty until only propellant comes out.

Caution

Do not spray onto moving parts or parts exposed to heat, such as joints, engine, gearbox, propshaft, exhaust, catalytic converter or brake systems.

Cleaning

- Splashes and overspray can be removed immediately while wet with spirit.
- Material that has dried onto surfaces can only be removed with thinner D or R. Take care with fresh paint!

Technical data

Colour	Light/black
Odour	Like solvent
Layer thickness after application cross-wise 2-3 times	250-300 µm dry film
Drying time	Touch-dry after approx. 2 hours
Processing temperature	+15 °C to +25 °C
Application temperature	-29 °C to +70 °C (+100 °C for short periods up to 1 hour)

3.6.2 Protection against stones - AKR 311 KD1 10-

Designation

- Anti-chip coating - AKR 311 KD1 10- black

Edition 02/2014

Product description

The black anti-chip coating - AKR 311 KD1 10- is a water-thinnable anti-chip coating.

Properties:

- High elasticity
- Can be overpainted with all top coat paints

- It is particularly suitable for use on all passenger car surfaces exposed to stone chipping, such as the front end and the door sill panels.

Application instructions

Base surface

Suitable base surfaces:

- Well sanded old paint or factory paint (including thermoplastic paints)
- Primed surfaces and surfaces treated with filler

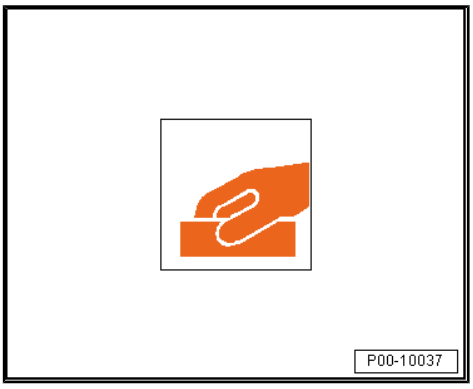
Caution

The anti-chip coating - AKR 311 KD1 10- must not be applied to PVB (acid-hardening) adhesion surfaces.

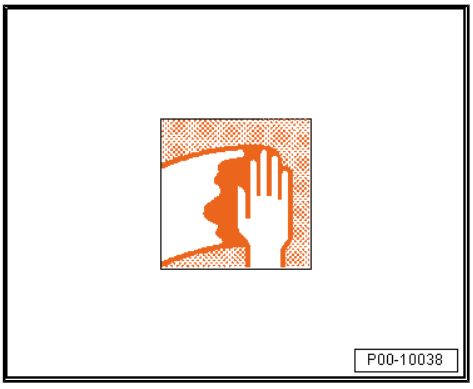
Preparing base surfaces:

– Clean carefully with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

– Then sand surface.



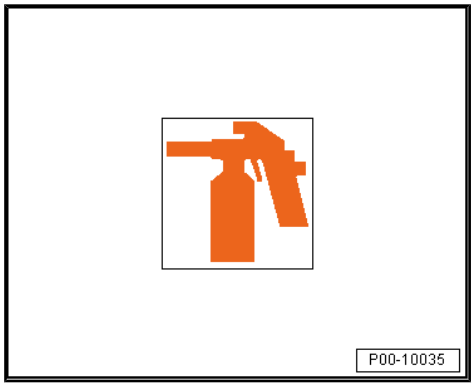
– Use a suitable cleaning agent to ensure a clean, residue-free surface prior to working over.



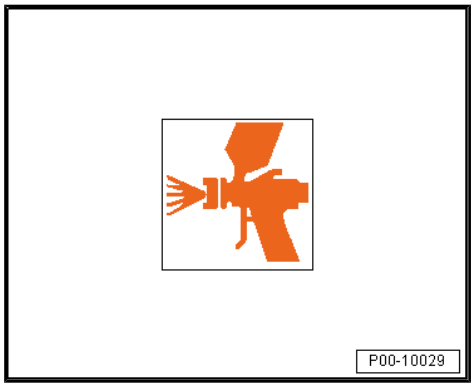
Processing

Spray unit

– Underbody spray gun with screw thread for disposable cans.



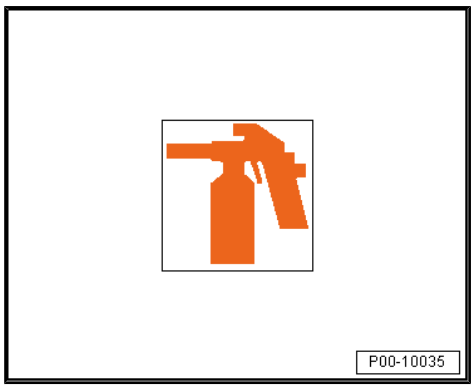
– If a finer surface is required, the anti-chip coating - AKR 311 KD1 10- can be processed using a gravity-feed gun after thinning.



Thinner:

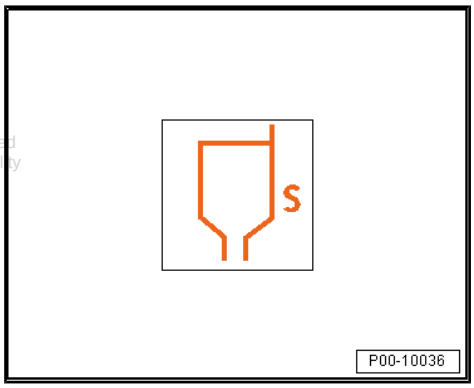
– Can be thinned with demineralised water - LVW 010 000 A5-

Application: “High-pressure spraying”



– Processing viscosity: 4mm at +20°C, DIN 53211

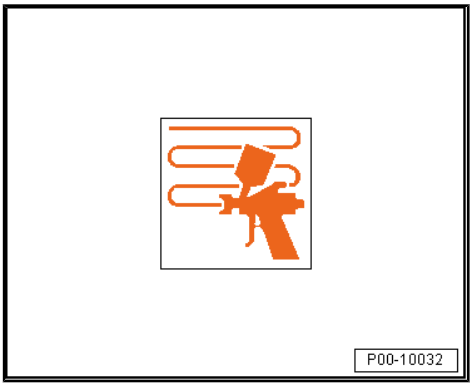
– Spraying pressure (see manufacturer's instructions): 3-4 bar.



Note

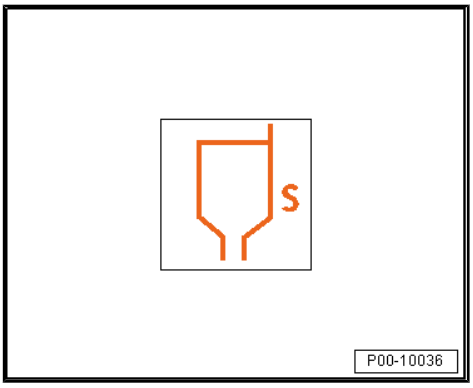
Do not thin for high-pressure spraying; viscosity on delivery is equal to processing viscosity.

Application “Spray application”



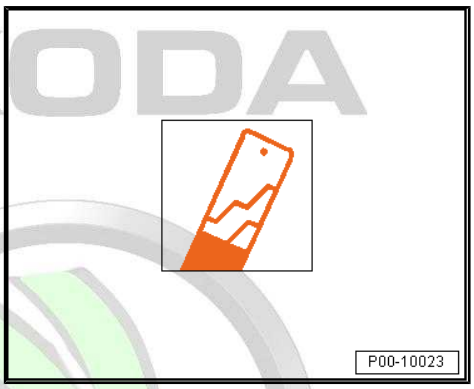
Processing viscosity: 4 mm “Compliant” gravity feed spray gun:

- Depending on addition of demineralised water - LVW 010 000 A5-

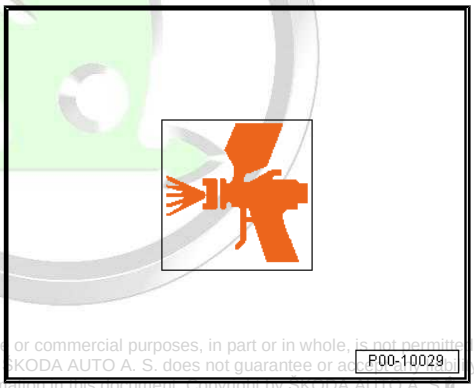


Add 10% thinner at +20 °C material temperature

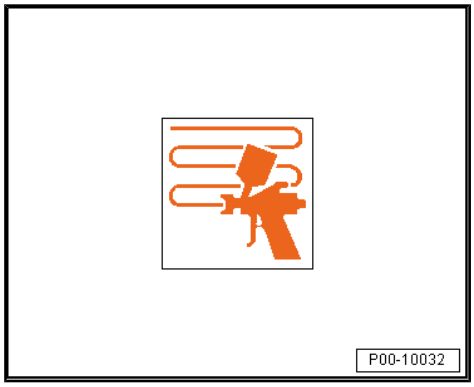
– If thinner is added, use a dipstick for mixing.



– Spray nozzle (see manufacturer's instructions): “Compliant” 1.5 - 2.0 mm.
– Spraying pressure (see manufacturer's instructions): “Compliant” 2.0 - 2.5 bar.

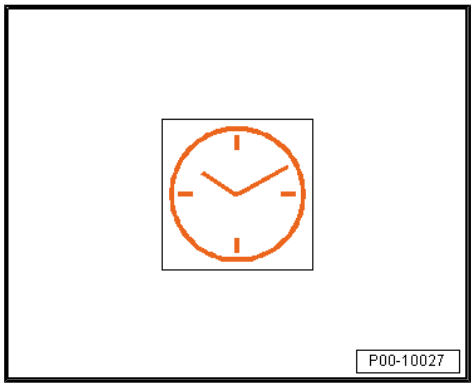


– 2-3 spray applications.
– The recommended dry layer thickness is 150-300 µm.

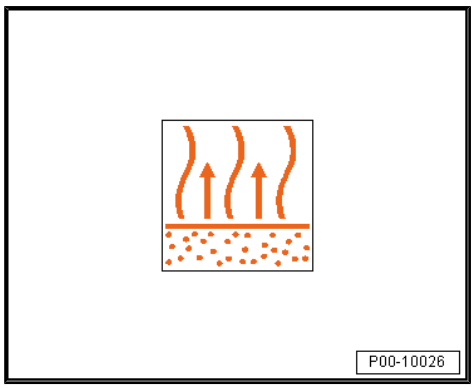


Drying

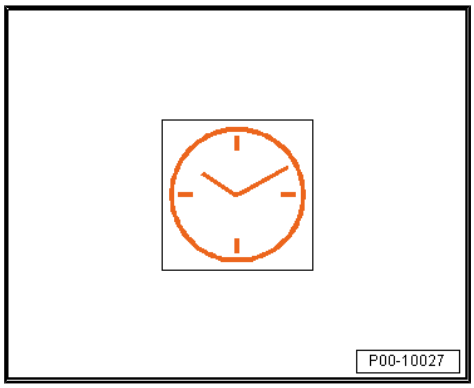
Air drying at +20 °C room temperature: up to 150 µm - 2-2.5 hours; up to 300 µm - overnight.



The final flash-off time for forced drying is min. 35-40 minutes.



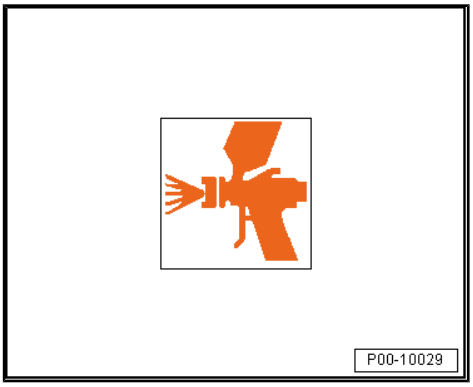
Forced drying at +60°C object temperature, 150-300 µm, is 30 minutes



Working over

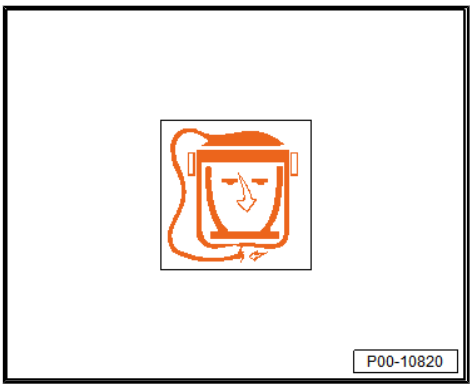
Can be overpainted with:

- Water-based base coat and 2K HS clear coat
- 2K HS top coat



Personal protective equipment:

- Comply with the safety datasheet
- Wear personal protective equipment during the application process

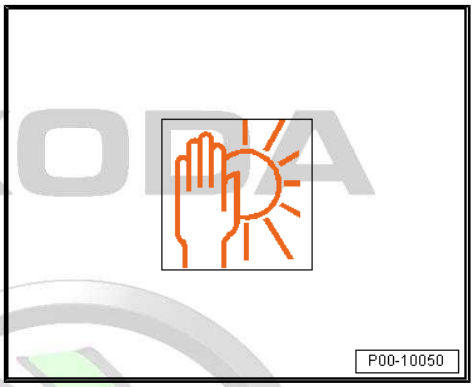


Key data

Viscosity on delivery	Thixotropic
Flash point:	non-flammable
VOC value: 2004/42/IIB (e)(840)130	The EU limit for this product (product category IIB.e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 130 g/l.

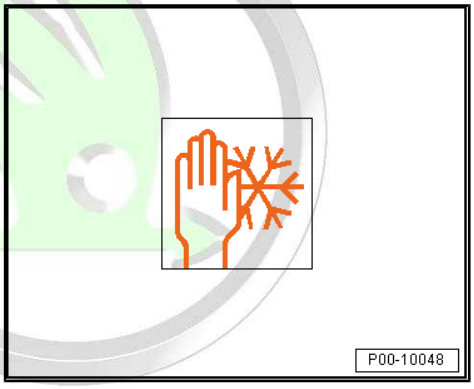
Storage

The guaranteed storage stability is 48 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



Storage conditions

The required storage temperature is +20 °C (must not fall below +5 °C).



3.7 Underbody sealing wax

3.7.1 Underbody sealing wax - D 316 D38 A2-

Designation

- Underbody sealing wax - D 316 D38 A2-

Product description

The underbody sealing wax - D 316 D38 A2- is a corrosion inhibitor containing solvents and manufactured using wax along with lanolin, polymers and antirust additives.

This produces a durable, tear-resistant coating along with a relatively high level of abrasion resistance for a wax.

The material penetrates into the pores in PVC coatings, disperses moisture, closes the pores, is water-resistant, highly adhesive and bonds firmly.

After drying, it forms a non-adhesive, transparent, light beige, water-resistant film.

As a result of its transparency, the product satisfies TÜV requirements (the floor panel can still be checked).

The dry coating exhibits good bonding and antirust properties, while its strong, tear-resistant structure and durability ensure an extremely long service life.

Application instructions for underbody sealing wax - D 316 D38 A2-

Application

- It is used primarily on vehicle floor panels, with special emphasis on touchups and maintenance of all protective coatings, such as PVC, PVC/wax, bitumen/rubber/resin-based substances.
- It can also be used to treat chassis parts such as axles, suspension and springs. These components assume a dull texture in the course of the years, and often show the first signs of rust. The treatment restores the colour, providing a substantial improvement in aesthetic appeal. The material also protects chassis components against corrosion.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- The surfaces to be treated with underbody sealing wax must be cleaned thoroughly beforehand, and any rust must be removed.
- The surfaces must be dry and free of dirt, dust and grease.

- The underbody sealing wax is designed exclusively for use on dry surfaces. Older vehicles should be inspected for signs of surface rust,
- which must be removed with a wire brush.
- Before application starts the vehicle should be carefully masked, with special attention to the window glass.
- The underbody sealing wax can be applied to vertical surfaces in a single pass. To avoid spray shadows, spray crosswise and lengthwise.
- The vehicle is ready for use after overnight drying. Between 24 and 48 hours are required for curing.
- The product is applied from the 1-litre can using the underbody sealant gun. Shake the contents of the can prior to application.
- The recommended wet-film layer depth is approximately 200 µm, with an application pressure of approximately 3-5 bar.
- The underbody sealing wax can also be applied using a suction-feed spray gun provided that the venturi hook nozzle (16139 SATA) is used. The processing pressure is min. approx. 3-4 bar. A flexible hose approximately 750 mm in length provides excellent guidance for the hook with the 7 mm venturi nozzle.

Caution

Do not spray onto joints, engine, gearbox, propshaft, exhaust, catalytic converter or brake systems.

The UBS spray gun must be sprayed empty and then flushed with plastic cleaner - D 195 850 A1- .

A blocked gun may cause the can to explode!

You must following the operating instructions for the UBS spray gun!

Cleaning

- Splashes and overspray should be removed immediately with plastic cleaner - D 195 850 A1- . Residues of material can also be removed easily using white spirit or paraffin.
- More extensive areas can also be cleaned with a steam cleaner.
- This is why surfaces treated with underbody sealing wax should not be cleaned with a steam cleaner unless the objective is to remove the old coating in preparation for a new application.

Technical data

Colour	Transparent light beige
Odour	Mild odour
Solid matter content	approx. 47 %
Consistency	Liquid, mildly thixotropic
Heat resistance of dry coating	> 100 °C
Curing time	24 - 48 hours
Processing temperature	+10 °C to +25 °C

Application temperature	-25 °C to +80 °C (+100 °C for short periods up to 1 hour)

3.7.2 Underbody sealing wax - D 316 000 A1-

Designation

- Underbody sealing wax - D 316 000 A1-

Product description

The underbody sealing wax - D 316 000 A1- provides excellent long-life corrosion protection.

The underbody sealing wax is based on a solvent-free, oxidative drying system and provides optimum corrosion protection for the underbody of vehicle bodies.

This corrosion protection is the result of excellent bonding to metallic surfaces, even at very low and high temperatures.

The product forms a light brown, elastic and non-slip coating.

Increased temperature is not required to moisten the film.

Application instructions for underbody sealing wax - D 316 000 A1-

Application

- The material is primarily used for automotive applications.
- Ensure that the base surfaces are dry.
- The ready-to-use product is applied with brushes at material temperatures of 20-35 °C.
- If required by the application technology, the material can be heated gently to up to 45 °C immediately before application (< 5 minutes).

- The oxidative hardening product can for a skin on the surface after only a short time. This does not affect the corrosion protection or other properties.

Properties

- Solvent-free
- Active ingredient content 100%
- Excellent long-life corrosion protection
- Good bonding properties
- Drip-resistant
- Flexible under cold conditions
- Long storage life

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- The surfaces to be treated must be dry and free of dirt, dust and grease.
- Bring the underbody sealing wax to working temperature (20-35 °C).
- Apply the material to the parts of the body to be protected and spread with brushes.

Technical data

Base	Mixture of corrosion inhibitors based on sulfonate, alkyd resin, specialist refined mineral oils, pigments, thickeners, drying agents and fluorescent dyes
As delivered/ colour	Light brown viscous liquid
Viscosity: Rheomat	1850 ± 350 mPas (PP50 system, d= 760 1/s)
Density/15 °C DIN EN ISO 12185	0.995 ± 0.015 g/ml
Solid matter content	99 ± 1 %
Flash point DIN EN ISO 2719	approx. 150 °C
Recommended coat thickness	100-400 µm
Processing temperature	+20 °C to +35 °C
Storage	approx. 12 months at temperatures of +10 °C to +30 °C.
Container	310 ml

3.7.3 Wax spray - D 322 100 M2-

Designation

- Wax spray - D 322 100 M2-

Product description

The wax spray - D 322 100 M2- is a long-life anti-corrosion agent. After drying, the product forms a light brown wax-like film. The wax spray provides good protection against mechanical stress because of its hardness.

Application instructions for wax spray - D 322 100 M2-

Application

- The material is primarily used for automotive applications, but also as temporary corrosion protection for tools and machinery.
- The wax spray does not attack vehicle paints and bonds to almost all substrates.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

- Bring the wax spray to room temperature (16-20 °C).
- Shake the spray can briefly before use.
- The surfaces to be treated (underbody, wheelhousings, insides of doors) must be dry and free of dirt, dust and grease.
- The wax spray is sprayed on evenly at a distance of 20-30 cm lengthwise and crosswise.

Caution

Do not spray onto joints, engine, gearbox, propshaft, exhaust, catalytic converter or brake systems.

Technical data

Base	Wax mixture
Colour	Light brown/transparent
Film type	Hard, wax-like
Density	0.735 g/cm³
Solid matter content	35,4 %
Flash point/ active ingredient	29 °C
Flash point/ spray	< -20
Recommended coat thickness	50 µm/wet
Drying time	approx. 30 min
Heat stability	105 °C
Can be removed	With white spirit
Processing temperature	+16 °C to +20 °C
Propellant (aerosol)	Propane/butane
Aerosol storage	Store in a cool and dry place < 50 °C
Safety note	Highly flammable
Container	500 ml

3.8 Sealant materials

⇒ “3.8.1 Polyurethane adhesive sealing mass”, page 49

⇒ “3.8.2 Spray sealant”, page 51

⇒ “3.8.3 Adhesive sealant”, page 54

3.8.1 Polyurethane adhesive sealing mass

Designation

- Polyurethane adhesive sealing mass - AKD 476 KD5 05-

Product description

The polyurethane adhesive sealing mass - AKD 476 KD5 05- is a one-component, pasty adhesive sealant that hardens into a rubber-elastic material.

The time required to form a skin or to cure completely depends on the ambient humidity and the temperature. The curing time also depends on the joint depth.

Increasing the temperature and ambient humidity can reduce these times. Low temperatures and low ambient humidity, on the other hand, increase them.

Properties:

- Can be overpainted, including “wet-on-wet”
- Extremely fast-curing
- Slightly levels surface
- Excellent elasticity
- High resistance to ageing
- Suitable for sanding
- Suitable for brushing

Application instructions

Application

- The polyurethane adhesive sealing mass - AKD 476 KD5 05- is used for elastic seal/adhesion, in particular to seal seams and very narrow joints where the lack of stability is not relevant, in body and vehicle manufacturing and for vehicle superstructures, in particular when the sealing joint has to be overpainted. The material should also be overpainted on exterior seams to avoid yellowing/crack formation.
- Mechanical methods of attachment, such as screws, welds, and clamps can be partially replaced by the polyurethane adhesive sealing mass - AKD 476 KD5 05- . Until the adhesive/sealing mass has cured, the seam must be temporarily secured with adhesive tape and spacers.
- The polyurethane adhesive sealing mass - AKD 476 KD5 05- has the great advantage that it can be used simultaneously as adhesive and sealant.
- The material is not suitable or only suitable under certain conditions for structural bonds.

Bonding properties

- The polyurethane adhesive sealing mass - AKD 476 KD5 05- bonds well to primed and painted body panels, wood (untreated, varnished and painted), some plastics, such as PBTP, polyurethane hard foam and GF polyester without glass/paint primer.

- Depending on base surface, it may be necessary to use a glass/paint primer as bonding agent to achieve optimal bonding.
- As there are many different primers, paints, plastic surfaces etc., tests are recommended for each specific application.
- Careful cleaning of plastic and metal surfaces with a suitable solvent often improves bonding significantly.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

Note

Areas of the body to be sealed and surfaces to be bonded must be insulated with a 2K filler before material is applied.

- The surfaces to be bonded must be dry and free of oil, dust, grease and other contaminants. Cleaner A, cleaner D and the plastic cleaner - D 195 850 A1- are suitable for cleaning.
- The polyurethane adhesive sealing mass - AKD 476 KD5 05- is applied from a 310 ml nozzle cartridge using a manual or pneumatic cartridge gun. The 310 ml film cartridges are used with the hand-cartridge gun - V.A.G 1628- or the pneumatic cartridge gun - V.A.G 1761/1- . If applied with compressed air, 2-5 bar pressure is required.
- If the sealing material is at low temperature, the viscosity increases, which noticeable reduces the spraying rate. To avoid this, the sealing material must be warmed as necessary before application.
- If the substrate is too cold, the temperature may fall below the dewing point so that condensation forms. This must be avoided by appropriate warming.
- After application, the polyurethane adhesive sealing mass - AKD 476 KD5 05- can be smoothed with a pointing trowel or spatula moistened with detensioned water. If the edges of the joint are masked with tape, simply pull off the tape with a spatula.
- Cleaner D is recommended for cleaning unhardened adhesive sealant off work equipment.

Overpainting

- The polyurethane adhesive sealing mass - AKD 476 KD5 05- can be overpainted “wet-on-wet” with 1K and 2K alkyd-acrylic-based repair paints and all original repair paints.
- Nitro repair paints from spray cans and alcohol-containing paints, paint thinners and accelerants are not compatible with the adhesive sealant (no hardening).
- Anti-corrosion primer may only be applied to the cured material, because such primers in most cases substantially inhibit vapour diffusion.

- If drying is accelerated in a drying oven or by using the infrared dryer, you must observer a pre-reaction/delay period of at least 30 minutes. Only then may you warm the overpainted adhesive sealant. The maximum temperature resistance is 1 hour at +90 °C for unhardened material.

Compatibility

- The polyurethane adhesive sealing mass - AKD 476 KD5 05- does not bond to sealing materials that are based on MS-polymers or silane-modified polymers.
- However, materials that are based on MS-polymers or silane-modified polymers do bond well to hardened polyurethane adhesive sealing mass - AKD 476 KD5 05- .

Technical data

Colour	white, grey, black
Odour	Aromatic (odourless when cured)
Consistency	Paste, can be brushed and spread with spatula
Durability	Slightly levels surface
Skin formation time (standard environment according to DIN 50014)	15-45 minutes at +23 °C and a relative ambient humidity of 50%
Hardening speed (standard environment according to DIN 50014)	approx. 5.5 mm/24 hours at +23 °C and a relative ambient humidity of 50%
Change in volume	approx. -6 %
Processing temperature	+5 °C to +35 °C
Application temperature	-40 °C to +70 °C (under certain conditions, 24 hours at +80 °C; for short periods up to 1 hour at +120 °C)

3.8.2 Spray sealant

Designation

- Spray sealant - D 476 KD1 M2- grey
- Spray sealant - D 476 KD2 M2- black

Product description

The spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- is a spray-on sealant with MS polymer vase. It hardens into a rubber-elastic material with good abrasion resistance by absorbing atmospheric moisture.

The time required to form a skin or to cure completely depends on the ambient humidity and the temperature. The curing time also depends on the thickness of the layer.

Increasing the temperature and ambient humidity can reduce these times. Low temperatures and low ambient humidity, on the other hand, increase them.

Properties:

- Sealant and joint sealer in one product
- High stability

- Can be sprayed and brushed
- Can be overpainted up to 3 days after application using conventional or water-thinnable paints
- Wide adhesion spectrum without glass/paint primer
- High initial stability
- Spot weldable
- Silicon-free
- No strong odour
- Isocyanate-free
- Fast curing
- UV resistant
- High resistance to ageing
- Sound-dampening properties

Application instructions

Application

- The spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- is used on vehicles to seal seams in cases of repair that are factory-sprayed, e.g. in areas of the engine compartment, luggage compartment and passenger cell. Each seam can be reached using the respective application tool, such as telescopic multi-press gun or pneumatic cartridge gun - V.A.G 1761/1- .
- It is also used as a surface coating to repair or supplement PVC underseal or anti-chip coating.

Pretreatment

- The surfaces to be bonded must be dry and free of oil, dust, grease and other contaminants. Cleaner FL is a suitable cleaner.
- Bonding will be improved if the contact surface is roughened with a sanding pad.
- If the material is only overpainted when it is completely dry, prepare for painting as for preparation for plastic components.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

Note

Areas of the body to be sealed and surfaces to be bonded must be insulated with a 2K filler before material is applied.

- The spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- in 310 ml aluminium cartridges can only be applied with a multi-press telescopic gun or a pneumatic cartridge gun - V.A.G 1761/1- .

These guns can be used to spray the material as a continuous bead or with the dual-circuit pneumatic system.

- The material can be sprayed or brushed and it is therefore possible to imitate structured seams and brushed structure seams.
- Pre-sealed sealant seams can be overpainted after 15-30 minutes.
- The corresponding settings on the spray guns enable the operator to imitate all types of structures, as specified by the manufacturer, quickly and conveniently. The width and boundaries of the seam can also be varied by adjusting the distance between gun and surface. Information on setting up and using the guns can be found in the operating instructions.
- Cleaner FL is recommended for removing fresh adhesive sealant from equipment. Once hardened, the material must be removed by mechanical means.

Overpainting

- Once the spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- has formed a skin, it can be overpainted with 1K and 2K repair paints, even if these contain alcohol as a solvent.
- Rapid overpainting will not prevent the material from curing, but will slow the process. Do not wait longer than three days before painting.
- Phosphate and epoxy resin primers are especially suitable as anti-rust primers before sealing or coating. It is important to ensure that the primer is dry before application.
- When after an accident repair the body areas for painting are the be treated with a filler, filler primer or spray filler then these must be treated with spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- before further sealing or coating.
- If after applying spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- a filler still have to be applied, the sealant must be at least 6 hours old and a filler that is suitable for coating plastics must be used.

Compatibility

- The spray sealant - D 476 KD1 M2- / -D 476 KD2 M2- is not compatible with fresh 1K polyurethane material. Polyurethane products must be solidified before overspraying with the sealant.
- The material should not be treated with aromatic solvent systems. This can dissolve or swell the sealant.

Technical data

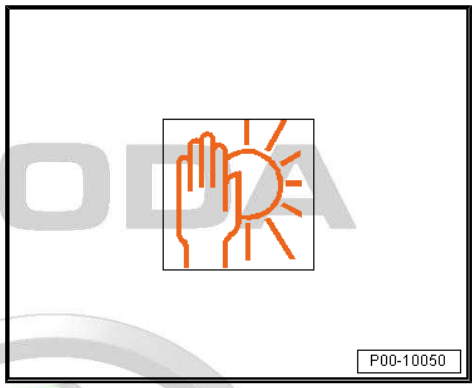
Colour	Grey, black
Odour	Barely perceptible
Consistency	Paste
Density	approx. 1.6 g/cm³
Durability	Very good
Hardening type	Moisture hardening
Skin formation time (standard environment according to DIN 50014)	8-20 minutes at +23 °C and a relative humidity of 50%

Fully cured (standard environment according to DIN 50014)	approx. 4 mm/24 hours, approx. 6 mm/48 hours, at +23 °C and a relative humidity of 50%
Shore A hardness	approx. 65
Can be overpainted with	1K and 2K paints after 20 minutes
Adhesive properties	Bare metal, galvanised sheet metal, EC paint, top coat paint, metallic paint, PVC underbody protection, GRP, PP/EPDM (tests recommended before application)
Chemical resistance	Resistant to ageing from light and weather, resistant to PVC softeners and, for limited periods, resistant to fuels
Processing temperature	+5 ℃ to +35 ℃
Application temperature	-40 °C to +90 °C (+130 °C for short periods up to 1 hour)

Storage

The material is not sensitive to freezing.

The guaranteed storage stability is 12 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +10°C - +25°C.



3.8.3 Adhesive sealant

Designation

- Adhesive sealant - D 511 500 A2- grey
- Adhesive sealant - D 511 510 A2- black

Product description

The adhesive sealant - D 511 500 A2- / -D 511 510 A2- is used as a rapid-curing sealer for all visible and invisible seams and joints, and for repairing sealed PVC joints to protect against corrosion for the bodywork repair.

The adhesive sealant is ideally suited for use as a corrosion inhibitor as a bulk sealer between spot welds, and can also be spot welded.

Properties:

- Extremely good adhesion on bare, primed and painted metal, galvanised surfaces, aluminium, wood, glass and plastics in general use in automotive applications.
- Can be painted over immediately
- Can be dried with infrared heater
- Dries rapidly under paint
- Possible to weld through/spot weld
- No blister formation

- No contact corrosion on zinc or aluminium
- Excellent corrosion protection
- Free of solvents, isocyanate and PVC
- Excellent resistance to UV and ageing

Application instructions

Application

- The adhesive sealant - D 511 500 A2- / -D 511 510 A2- is used to seal seams for vehicle repairs.

Pretreatment

- The surfaces to be bonded must be dry and free of oil, dust, grease and other contaminants.
- Bonding will be improved if the contact surface is roughened with a sanding pad.

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Processing

Note

Areas of the body to be sealed and surfaces to be bonded must be insulated with a 2K filler before material is applied.

- For sealing, the adhesive sealant - D 511 500 A2- / -D 511 510 A2- is applied to seams and joints with the pneumatic cartridge gun - V.A.G 1761/1- or the hand-cartridge gun - V.A.G 1628- . It can then be left as a sealant bead or smoothed with a brush or spatula (observe surface skin formation time of < 10 minutes), depending on required appearance. Once the surface skin has formed, the material can still be smoothed with a moistened spatula.
- The adhesive sealant can be overpainted with all repair paints. The sealant must be overpainted no more than 48 hours after being applied. Using an infrared heater to dry the paint will not impair hardening of the sealant.
- If the adhesive sealant is used as a sealant for spot welding, a sealant bead (2-3 mm in diameter) should be applied to the flange before the repaired part is put into position. The repaired part should be bonded before a surface skin starts to form (< 10 minutes).
- The sealant can be spot welded within 30 minutes. After welding, any protruding sealant can be smoothed.

Compatibility

- Never apply sealants that are based on MS-polymers or silane-modified polymers to unhardened polyurethane adhesive sealant. This inhibits hardening of the polyurethane adhesive sealant or prevents complete hardening.

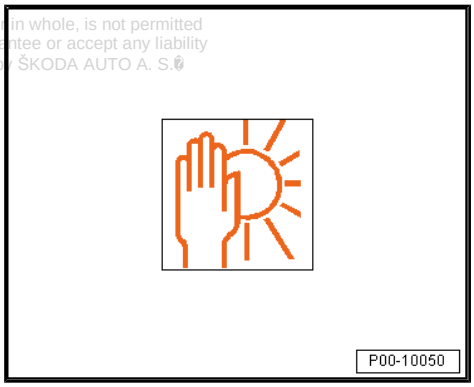
- However, fresh, sprayable materials that are based on MS-polymers or silane-modified polymers do bond well to hardened polyurethane adhesive sealant.

Technical data

Colour	Grey, black
Base	Silane-modified polymer
Change in volume after hardening	- 3 %
Surface skin formation	± 20 minutes
No adhesion	4 hours at +20°C
Hardening rate	3-4 mm/4 hours at +20°C
Solvent content	0 %
Isocyanate content	0 %
Temperature resistance	-40 °C to +120 °C (+180 °C for short periods up to 30 minutes)
Processing temperature	+5 °C to +35 °C
Resistance to UV and weather	Excellent

Storage

The guaranteed storage stability is 18 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +5°C - +30°C.



3.9 Cleaning agent

⇒ “3.9.1 Silicone remover”, page 56

⇒ “3.9.2 Plastic cleaner”, page 58

⇒ “3.9.3 Anti-static plastic cleaner”, page 59

⇒ “3.9.4 Industrial cleaning remover”, page 60

3.9.1 Silicone remover

Designation

- Aqueous silicone remover - LSW 019 000 A5-
- Silicone remover - LVM 020 000 A5-
- Slow-drying silicone remover - LVM 020 100 A5-

Product description for silicone remover - LSW 019 000 A5-

The silicone remover - LSW 019 000 A5- is an aqueous cleaner with no special labelling requirements, containing a small proportion of organic solvents and special cleaning additives.

Product description for silicone remover - LVM 020 000 A5- and slow-drying silicone remover - LVM 020 100 A5-

The silicone remover - LVM 020 000 A5- is a quick-evaporating mixture. The slow-drying silicone remover - LVM 020 100 A5- is a mixture of slow-evaporating organic solvents. Both are used primarily to remove oil and grease residues.

Application instructions

Application

- It is used to clean sanded old and factory paint, as well as primed and sanded areas and areas treated with filler before further working over.

Processing

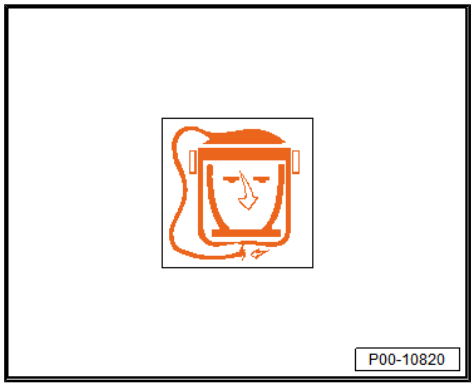
- Apply silicone remover with a spray bottle or a clean cloth.
- Dry the surface with a dry cloth before the silicone remover evaporates.
- Let all cleaned surfaces evaporate dry before further application or blow-dry.

Note

- *Allow the cleaned surface to dry fully before working over.*
- *Do not allow sprayed-on silicone remover to dry on the surface.*
- *The product is not suitable for cleaning spray nozzles and equipment.*
- *Change used or dirty cloths in good time (always use a clean cloth).*
- *Repeat the cleaning procedure if the surface is very dirty.*
- *The silicone remover - LSW 019 000 A5- is not suitable for removing separating agent residue on UP-GF or other plastic surfaces.*

Personal protective equipment:

- Comply with the safety datasheet
- Wear personal protective equipment during the application process



Key data for silicone remover - LSW 019 000 A5-

Flash point:	Above +23°C
VOC value: 2004/42/IIB (a)(200)200	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 200 g/l volatile organic compounds. The VOC value of this product in ready-to-spray form is max. 200 g/l.

Key data for silicone remover - LVM 020 000 A5-

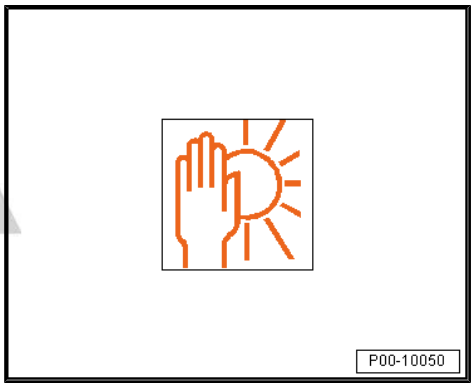
Flash point:	Above +4°C
VOC value: 2004/42/IIB (a)(850)770	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 850 g/l volatile organic compounds. The VOC value of this product in ready-to-spray form is max. 750 g/l.

Key data for slow-drying silicone remover - LVM 020 100 A5-

Flash point:	Above +26°C
VOC value: 2004/42/IIB (a)(850)770	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 850 g/l volatile organic compounds. The VOC value of this product in ready-to-spray form is max. 770 g/l.

Storage

The guaranteed storage stability is 60 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.9.2 Plastic cleaner

Designation

- Plastic cleaner - D 195 850 A1-

Product description

The plastic cleaner - D 195 850 A1- is a liquid universal cleaner and thinner/reducer based on aromate-free benzines with a low n-hexane content. This product contains no chlorinated hydrocarbons and does not attack paint immediately.

Application instructions

Application

- The plastic cleaner - D 195 850 A1- is primarily used to degrease and clean substrates before applying adhesives and sealants.
- The adhesive surfaces must be thoroughly cleaned for effective bonding, with particular emphasis on removing dust, oil and grease.

- Depending on the base constituents in these products, the cleaner may also be used to remove contamination and protruding excess material, as well as various undercoating materials.
- In many applications, the plastic cleaner - D 195 850 A1- can also be used as a thinner for certain adhesives, sealants and coating compounds. Note that these products are not usually diluted for application. Dilution with thinner/reducer is relevant only for certain procedures that require a thinner consistency.

Processing

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

- The plastic cleaner - D 195 850 A1- is applied either with a brush or a cleaning cloth or similar, depending upon the degree of contamination and the size and shape of the parts being cleaned.
- To prevent the contents of the original container from being contaminated, the cleaner should either be poured onto the cloth (do not hold the cloth against the container's mouth and hold container upright) or the required amount should be transferred to another container (tin can, etc.).
- Pour out only the amount required for cleaning, then close the original container again immediately.
- After cleaning, allow the cleaned surface to dry thoroughly (approximately 2-10 minutes, depending upon the conditions) before applying an adhesive or sealant.
- While application of compressed air can accelerate the drying process, under unfavourable conditions oil in the compressed air can destroy the results of the cleaning process.
- If the base surface has an open-pore texture, wait at least 30 minutes after cleaning. When cleaning residual material from sections that have been cut for removal (e.g. when reinstalling permanently glazed door windows), always observe the processing instructions for the products.

Key data

Colour	Water bright, transparent
Odour	Similar to petrol

3.9.3 Anti-static plastic cleaner

Designation

- Anti-static plastic cleaner - LVM 001 001 A2-

Note

Application and processing instructions for the anti-static plastic cleaner - LVM 001 001 A2- are included for the applicable components.

3.9.4 Industrial cleaning remover

Designation

- Industrial cleaning remover - ABS 600 000 10-

Product description

The industrial cleaning remover - ABS 600 000 10- is used to remove surface rust (metal dust) on vehicle bodies. The product is used without thinning.

Caution

The product contains organic and inorganic acids.

You must wear safety gloves and safety goggles when handling this product!

Application instructions

Note

- *Before starting work it is important to consult the safety regulations for information on mandatory precautions and suggested safety procedures.*
- *All standard safety precautions for chemical products must be observed, even when using substances not subject to special labelling requirements.*

Application/processing

When applying, note the following:

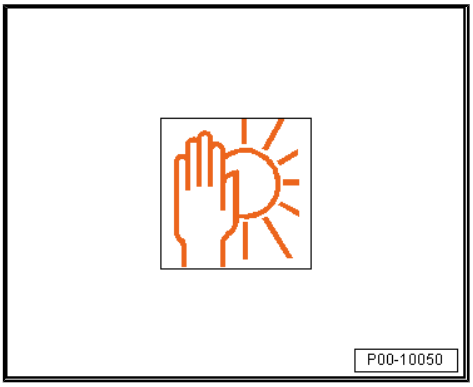
- The temperature of the cleaner and of the body must not exceed 25 °C (do not expose vehicle or product to direct sunlight).
- The product is applied to the body with a brush or sponge after car wash. Leave the product for approx. 10 minutes (do not increase application time, because otherwise the paint or plastic parts may be affected). Do not surface-dry the product.
- Rinse and wash the body/vehicle with plenty of water.
- If the vehicle is still not clean after one application, repeat the cleaning procedure.

Key data

Chemical composition	High-performance cleaner with combination of organic and inorganic acids, as well as wetting agents and water
Colour	Water bright, transparent/clear colourless liquid
pH value	1
Density at 15 ° C	EN ISO 12185 1.076 ± 0.015 g/ml

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +15°C - +30°C.



3.10 SprayMax system

⇒ “3.10.1 2K filler”, page 61

⇒ “3.10.2 2K clear coat”, page 67

⇒ “3.10.3 2K epoxy primer filler”, page 71

⇒ “3.10.4 2K wash primer”, page 76

⇒ “3.10.5 Silicone remover LLS MAX 007 ”, page 80

⇒ “3.10.6 Slow-drying silicone remover LLS MAX 008 ”, page 83

⇒ “3.10.7 Blender”, page 85

⇒ “3.10.8 Bonding agent”, page 86

3.10.1 2K filler

Designation

- 2K filler - LLS MAX 202 M2- mid-grey

Product description

The 2K filler - LLS MAX 202 M2- mid-grey a very high-grade 2K HS sanding filler. It is based on acrylic resins.

Properties:

- Constant atomising pressure
- Aerosol distribution
- Long pot life
- Optimum and reliable processing characteristics
- Excellent durability
- Outstanding sanding characteristics
- Very high yield
- Outstanding filling capacity
- Area of application: Clever Repair
- Professional finish

Note

Wear personal protective equipment that complies with work safety regulations.

Application instructions

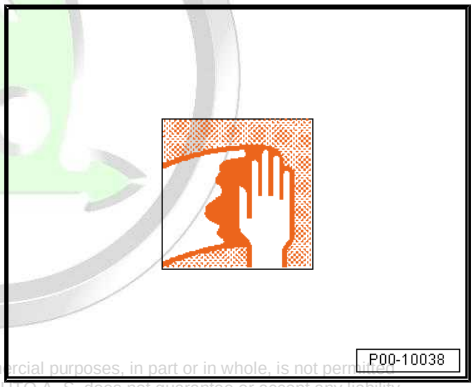
Base surface

Suitable base surfaces:

- Cleaned and sanded sheet metal surfaces primed with 2K wash primer - LHV 043 000 A2- or 1K wash primer - LVM 044 007 A2- / -LVM 044 171 A2- , electroplated or galvanised sheet metal or soft aluminium
- Finely sanded, thoroughly cleaned, original factory paint
- Lightly sanded factory paint or old paint (except TPAs)
- Surfaces prepared with 2K polyester products and then finely sanded
- Cleaned and sanded UP-GF base surfaces, free of release agents

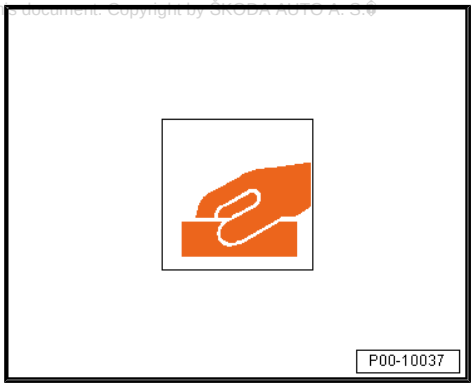
Preparing base surfaces:

– Clean carefully with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



– Sand factory or old paint.

– Completely remove any rust spots and spot-sand the transitions to the old paint.

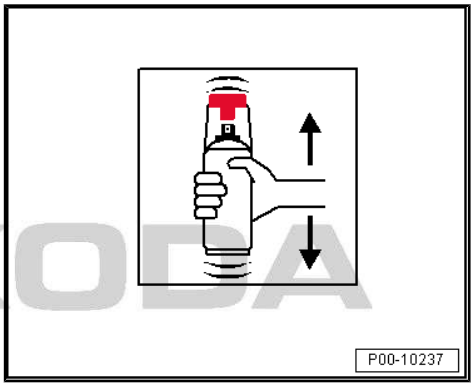


– Use a suitable cleaning agent to ensure a clean, residue-free surface prior to working over.

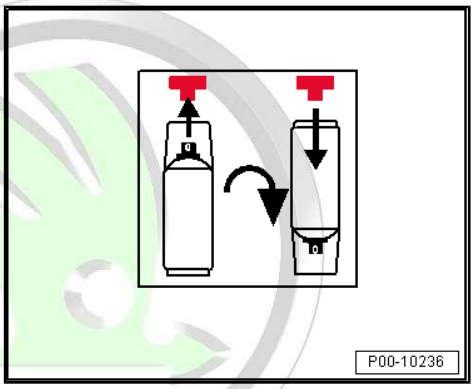
Processing

Activate the 2K can:

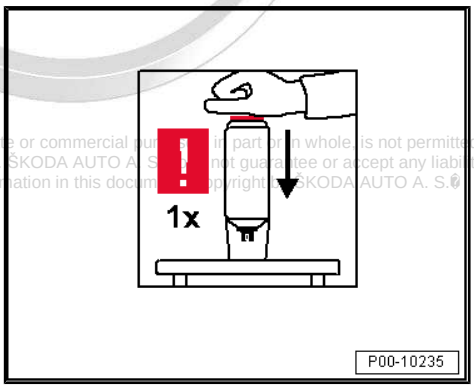
– Shake before use.



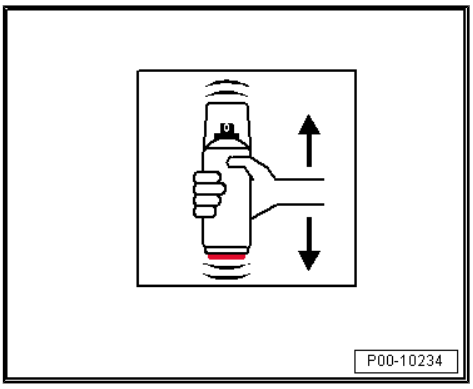
– Remove the red prelease button from the cover and place it onto the hardener mixing valve on bottom of the can.



– Press in the hardener mixing valve. When pressing in the hardener mixing valve, ensure that the can is upside down.

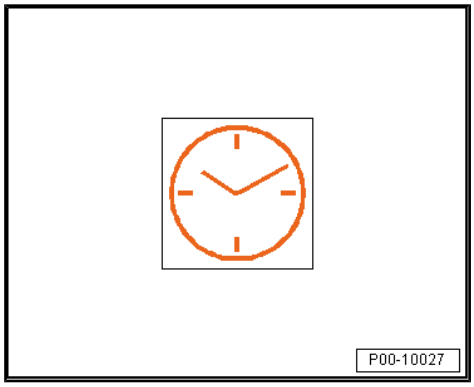


– Shake can thoroughly for at least two minutes.



Processing/pot life:

– 8 hours at +20°C



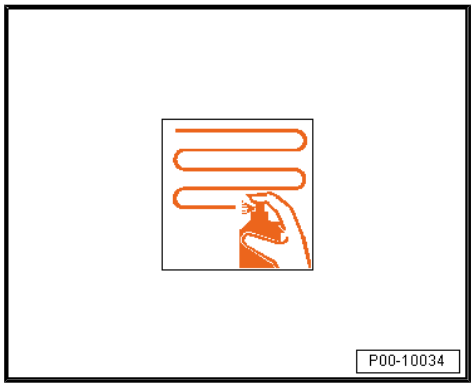
Application “Spray application”

– 2–3 coverage spray applications with 5-10 minute flash-off time between applications.

Spray distance:

– A distance of 20-25 cm must be maintained.

– The recommended dry layer thickness is approx. 80-120 µm.



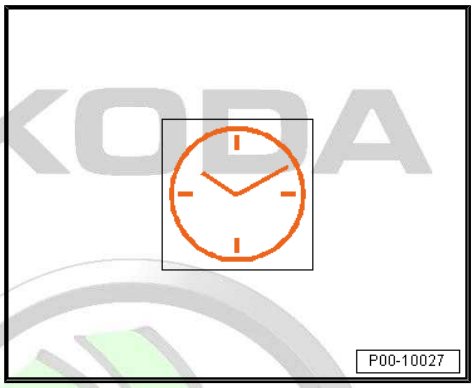
Note

If the spraying procedure has to be interrupted, ensure that you spray upside down until the valve is empty to prevent clogging the nozzle.

Drying

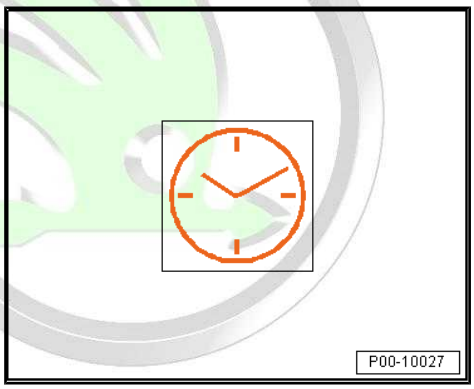
Air drying at +20°C room temperature:

♦ 3-4 hours for a dry layer thickness of 80-120 µm.

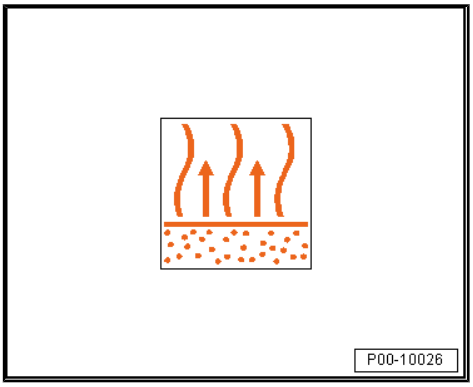


The flash-off time for forced drying is min. 5-15 minutes.

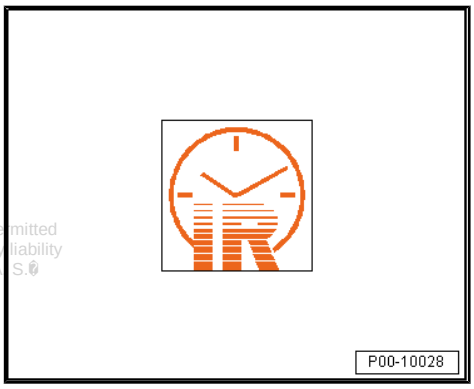
Forced drying at +60°C object temperature, 80-120 µm, is 30-40 minutes.



The flash-off time for infrared drying is min. 5-10 minutes.

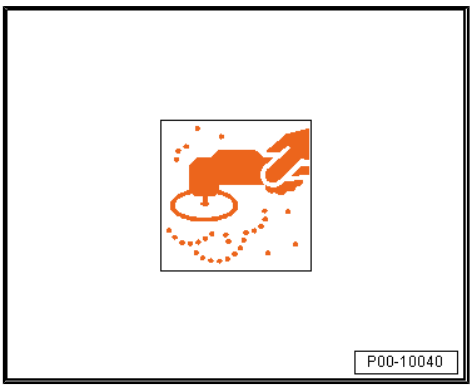


Infrared drying at a layer thickness of 80-120 µm is 10 minutes with short-wave radiator and 15 minutes with medium-wave radiator.



Further instructions

– Dry sand with orbital sander and dust extractor, grit P400-500.

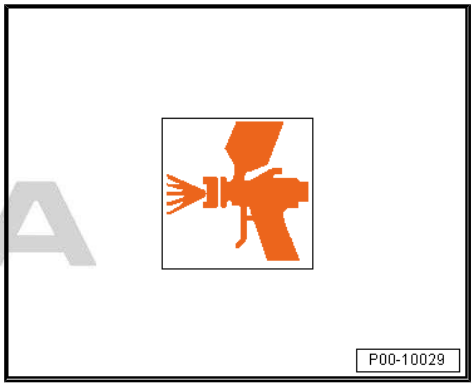


– Wet sand with sandpaper, grit P800-1000

Working over

Can be overpainted with:

- 2K HS top coat
- Water-based base coat and 2K HS clear coat



Note

- *Any defects in the base surface can be "touched up" using 2K polyester filler.*
- *After drying and intermediate sanding, the filled areas can be insulated again with 2K epoxy primer filler - LLS MAX 220 M1/ M2- or 2K HS Premium filler.*
- *The best insulation, even on critical surfaces, is obtained with a medium application thickness of 80-120 µm in 2–3 spray applications with air drying overnight or oven/infrared drying. Difficult base surfaces require fine preparation and filler must be applied to cover all parts.*
- *We recommend grey 2K HS Vario filler - LGF 786 004 A4- to insulate thermoplastic paintwork.*

Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

Shake briefly once again before each further spray application.

Dispose of the fully emptied spray cans as recyclable material.

WARNING

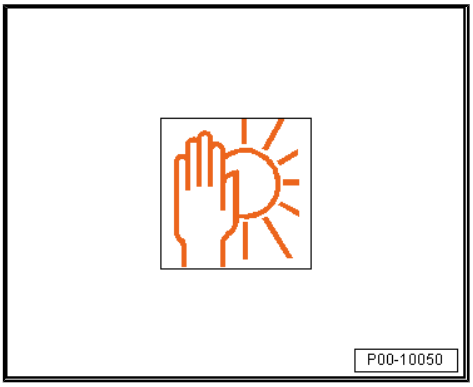
- ***Coating materials ready for application that contain isocyanate may cause irritation to mucous membranes – especially the respiratory organs – and cause hypersensitive reactions.***
- ***Sensitisation may occur if vapours and spray mist are inhaled.***
- ***Carefully observe all rules for working with coating materials containing solvents when working with coating materials containing isocyanate. Particular care must be taken to prevent inhalation of spray mist and vapour.***
- ***Persons suffering from allergies, asthma or other respiratory problems should not work with coating products containing isocyanate.***

Key data

VOC value: 2004/42/IIB (e)(840)690	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic compounds. The VOC value of this product in ready-to-spray form is max. 690 g/l.

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.2 2K clear coat

Designation

- 2K clear coat - LLS MAX 210-

Product description

The 2K clear coat - LLS MAX 210- is a high-gloss two-component clear coat paint for a long-lasting sealed finish on painted surfaces. It has been specially developed for parts and repairs paintwork. This product is long-lasting in all weather conditions, highly resistant to chemical and petrol damage and very easy to polish. The 2K clear coat flows very well and tends to be used on larger surfaces (1-2 body parts). It is based on acrylic resins. The hardener contains isocyanate.

Properties:

- Constant atomising pressure
- Aerosol distribution
- Excellent filling
- Area of application: Touch-ups for paintwork of parts and repairs.
- Professional finish

Note

- *Personal protective equipment that meets the requirements for safety at work must be worn:*
- *Breathing mask type: A2/P2*
- *Protective gloves, e.g. latex or synthetic rubber*

Application instructions

Base surface

Suitable base surfaces:

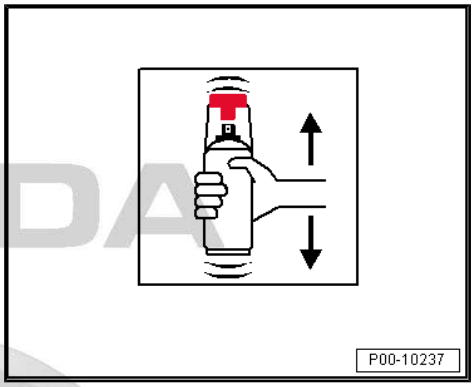
- Solvent and water-thinnable base paint systems
- Old paintwork, cleaned and sanded

Base surface	Suitability
1K base paint	+++
1K water-based paint	+++
2K top coat	++
Old paint	+++

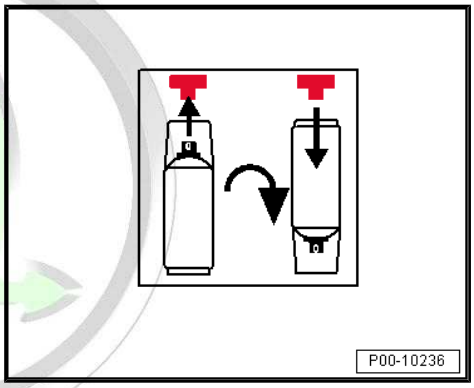
Processing

Activate the 2K can:

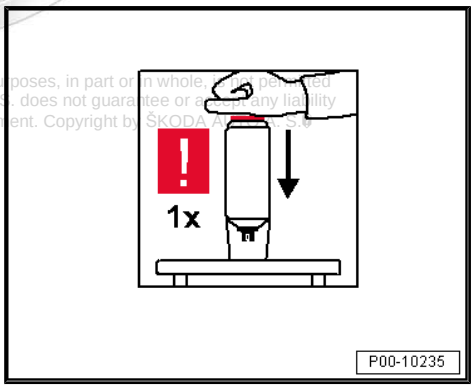
– Shake can thoroughly for at least two minutes.



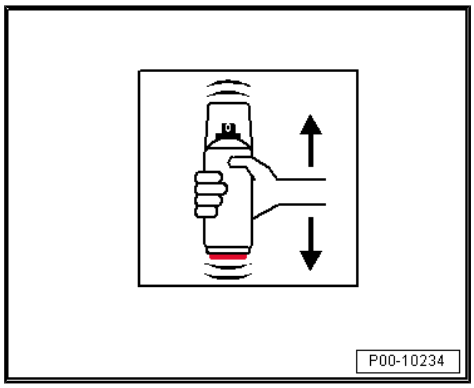
– Remove the red prelease button from the cover and place it onto the hardener mixing valve on bottom of the can.



– Press in the hardener mixing valve. When pressing in the hardener mixing valve, ensure that the can (with cap) is upside down.

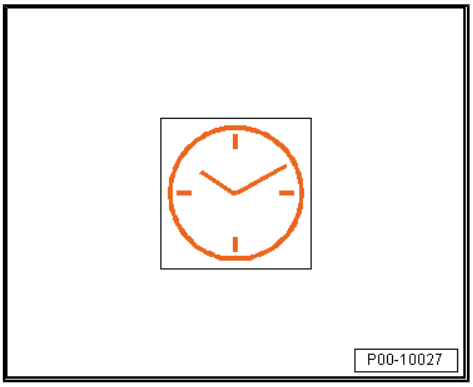


– When the can has been activated, shake thoroughly again for two minutes.



Processing/pot life:

– 48 hours at +20°C

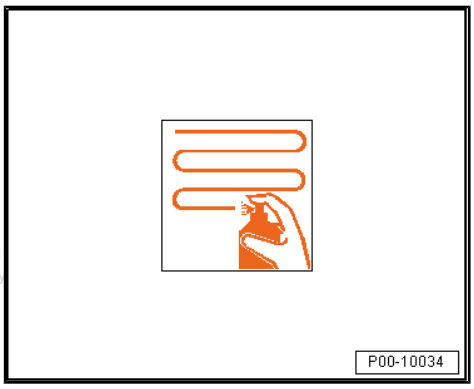


Note

The processing time depends on the ambient temperature. Higher temperatures result in a shorter pot life, lower temperatures lead to a longer pot life.

Application “Spray application”

– 1-2 spray applications, each spray application approx. 30 µm, flash-off time between spray applications: 10-15 minutes, depending on temperature.



Spray distance:

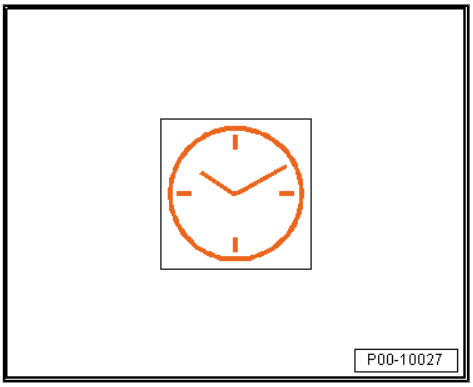
– A distance of 20-25 cm must be maintained.

Note

If the spraying procedure has to be interrupted, ensure that you spray upside down until the valve is empty to prevent clogging the nozzle.

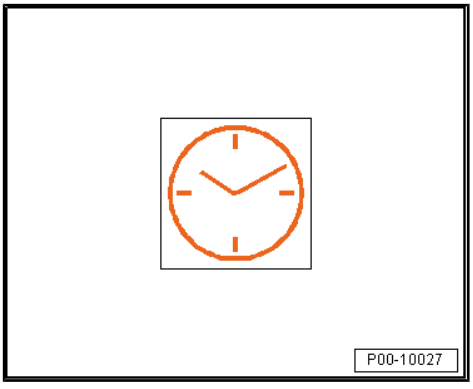
Drying

Air drying at +20°C room temperature takes 12 hours.

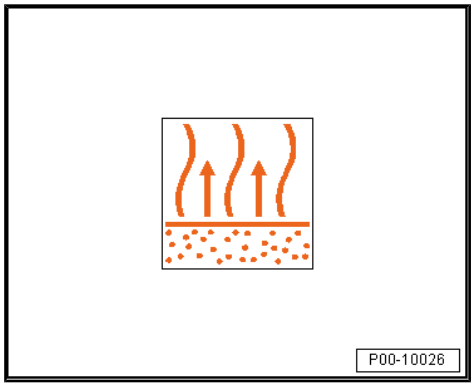


The flash-off time for forced drying is min. 10-15 minutes.

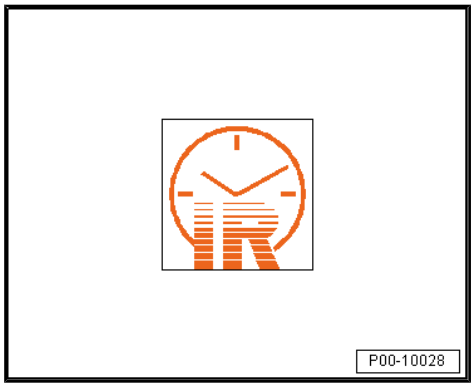
Forced drying at +60°C object temperature is 35-40 minutes.



The flash-off time for infrared drying is min. 10-15 minutes.



Infrared drying is recommended.



Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

Shake briefly once again before each further spray application.

Dispose of the fully emptied spray cans as recyclable material.

WARNING

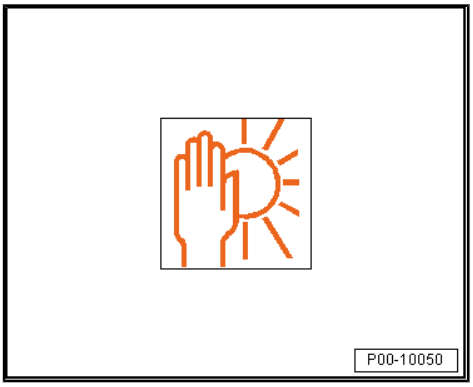
- *Coating materials ready for application that contain isocyanate may cause irritation to mucous membranes – especially the respiratory organs – and cause hypersensitive reactions.*
- *Sensitisation may occur if vapours and spray mist are inhaled.*
- *Carefully observe all rules for working with coating materials containing solvents when working with coating materials containing isocyanate. Particular care must be taken to prevent inhalation of spray mist and vapour.*
- *Persons suffering from allergies, asthma or other respiratory problems should not work with coating products containing isocyanate.*

Key data

Proportion of solids:	33.8% thinned paint
Yield:	Approx. 0.5–0.75 m²/spray can at approx. 30–50 µm dry layer thickness
Gloss:	High-gloss
VOC value:	668 g/l, 258 g/can

Storage

The guaranteed storage stability is 24 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.3 2K epoxy primer filler

Designation

- 2K epoxy primer filler - LLS MAX 220 M1- beige (250 ml)
- 2K epoxy primer filler - LLS MAX 220 M2- beige (400 ml)

Product description

The 2K epoxy primer filler - LLS MAX 220 M1/M2- is two-component epoxy spray can for use on small damaged areas. It is not used in areas directly susceptible to chipping.

When applied to the underbody, epoxy primer filler must be protected by trim, body cladding, wheel housings and so on as well as UBP material. All difficult-to-reach areas must be sealed with underbody sealing wax.

Wear personal protective equipment that complies with work safety regulations.

Properties:

- Range of uses
- Good corrosion protection

Application instructions

Base surface

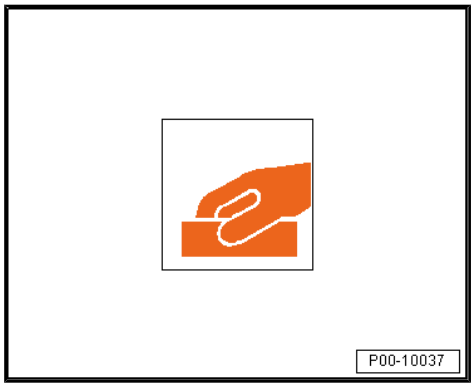
Suitable base surfaces:

- Bare sheet steel, sanded
- Cleaned and sanded galvanised or electroplated steel panels or soft aluminium
- Well-sanded old paint or factory paint
- Genuine replacement part primer, sanded
- Cleaned and sanded UP-GF base surfaces, free of release agents
- Surfaces prepared with 2K polyester products and then finely sanded

Preparing base surfaces:

– Clean carefully with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .

– Then sand surface.



– Use a suitable cleaning agent to ensure a clean, residue-free surface prior to working over.

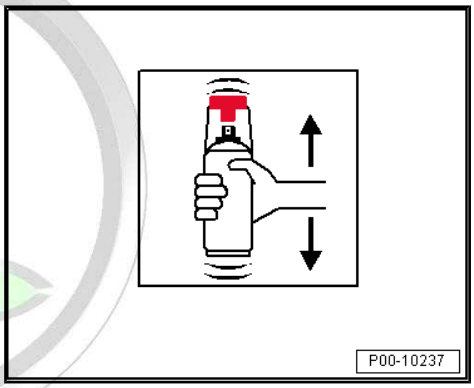
Caution

The 2K epoxy primer filler - LLS MAX 220 M1/M2- must not be applied to PVB (acid-hardening) adhesion surfaces or 1K primers (e.g. synthetic resin).

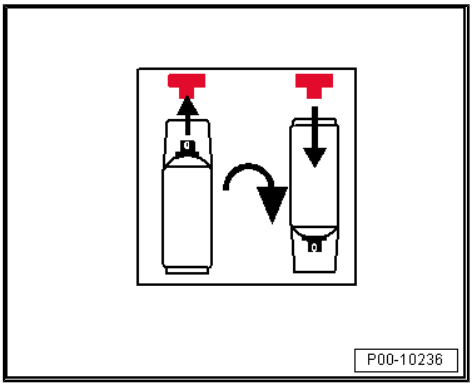
Processing

Application:

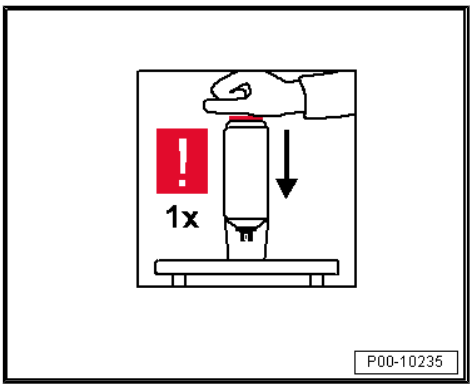
– Shake before use.



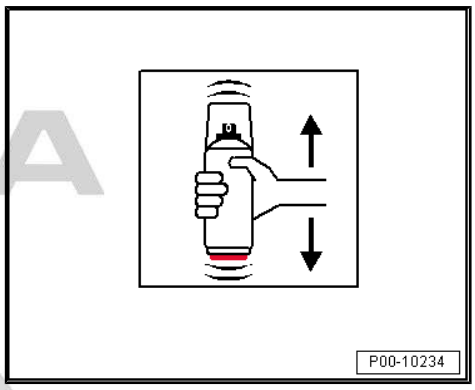
– Remove the red prelease button from the cover and place it onto the hardener mixing valve on bottom of the can.



– Press in the hardener mixing valve. When pressing in the hardener mixing valve, ensure that the can is upside down.

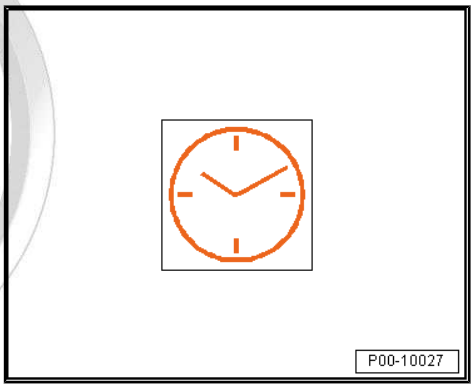


– Shake can thoroughly for at least two minutes.



Processing/pot life:

– 8 hours at +20°C



Application “Spray application”

– 2–3 spray applications with 5-10 minute flash-off time between applications.

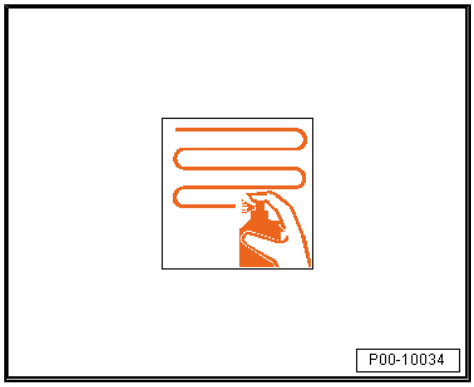
Spray distance:

– A distance of 20-25 cm must be maintained.

Reaction temperature:

– at least +15 °C

– The recommended dry layer thickness is 50-70 µm.

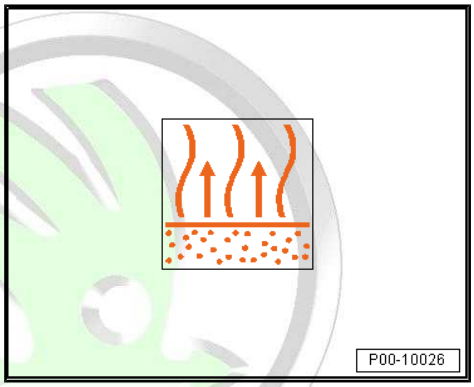


Note

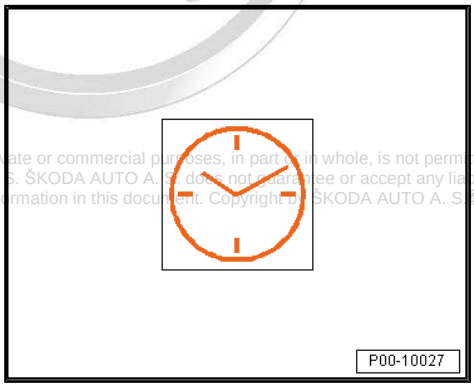
If the spraying procedure has to be interrupted, ensure that you spray upside down until the valve is empty to prevent clogging the nozzle.

Drying

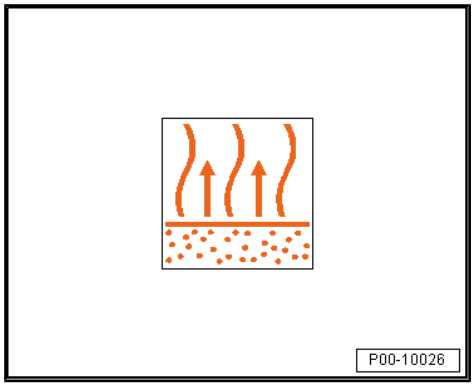
The flash-off time for forced drying is min. 5-15 minutes.



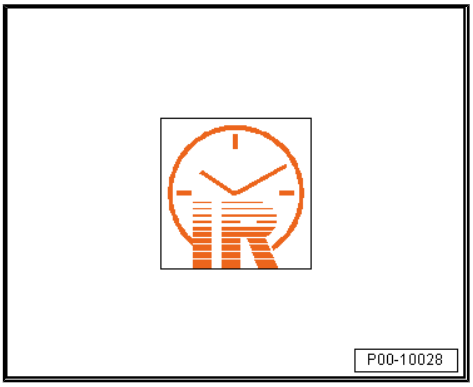
Forced drying at +60-65°C object temperature with a layer thickness of 50-70 µm is 40-45 minutes.



The flash-off time for infrared drying is min. 10-20 minutes.

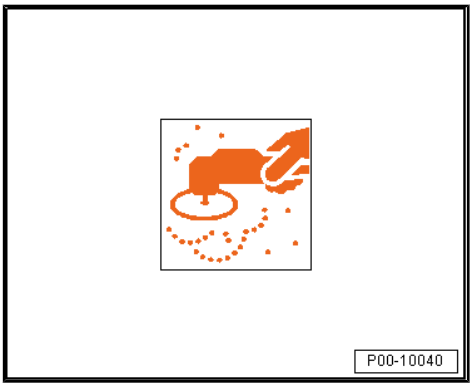


Infrared drying at a layer thickness of 50-70 µm is 3-5 minutes for a short-wave radiator at 50% output and then 15-20 minutes at 100% output.



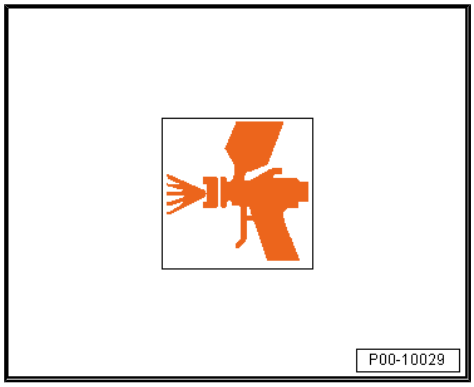
Further instructions

– Dry sand with orbital sander and dust extractor, grit P400-500.



– Wet sand with sandpaper, grit P800-1000

Working over



Can be overpainted with:

- 2K HS top coat
- Water-based base coat and 2K HS clear coat

Note

- *Any defects in the base surface can be "touched up" using 2K polyester filler.*
- *After drying and intermediate sanding, the filled areas can be insulated again with 2K epoxy primer filler - LLS MAX 220 M1/ M2- .*

Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

The can must be shaken for approx. 2 minutes before processing and before triggering the hardener cartridge. Shake briefly once again before each further spray application.

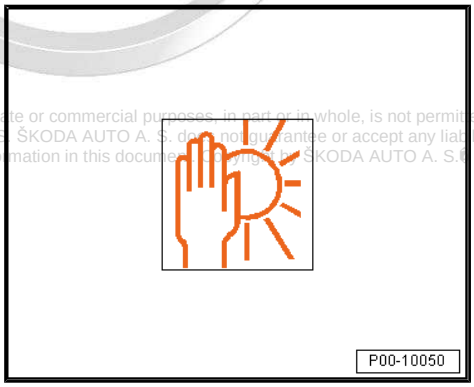
Dispose of the fully emptied spray cans as recyclable material.

Key data

VOC value: 2004/42/IIB (e)(840)650	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic compounds. The VOC value of this product in ready-to-spray form is max. 650 g/l.

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.4 2K wash primer

Designation

- 2K wash primer - LLS MAX 230 M1- olive green (250 ml)

Product description

This 2K wash primer - LLS MAX 230 M1- is a zinc chromate- and phenol-free acid-hardening two-component wash primer from out PVB range.

Wear personal protective equipment that complies with work safety regulations.

Properties:

- Easy to process
- Outstanding corrosion protection based on its passivating characteristics
- For metallic base surfaces
- Short time before it can worked over
- Long pot life
- Area of application: Exclusively for Clever Repair and minor repairs

Application instructions

Base surface

Suitable base surfaces:

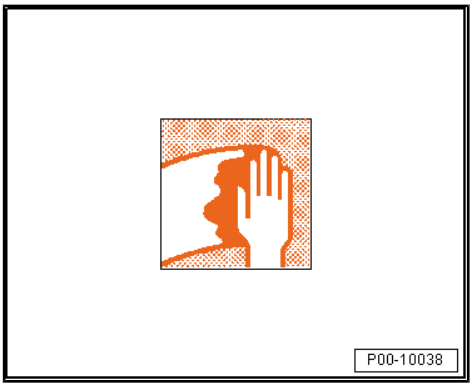
- Bare sheet steel, sanded
- Cleaned and sanded galvanised or electroplated steel panels or soft aluminium
- Well-sanded factory paint or old paint (with the exception of thermoplastic paint)
- Surfaces prepared with 2K polyester products and then finely sanded

Note

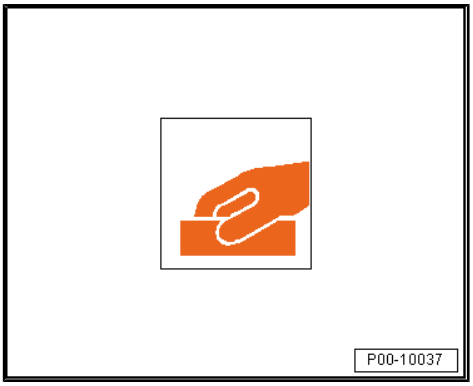
Owing to the wide variety of metal alloys and manufacturing processes, it is essential to carry out a preliminary test on the applicable base surface to ensure that the pretreatment is sufficient to guarantee correct adhesion.

Preparing base surfaces:

– Clean carefully with silicone remover - LVM 020 000 A5- or slow-drying silicone remover - LVM 020 100 A5- .



– Clean and sand factory paint or old paint, completely remove any rust spots and spot-sand the transitions to the old paint.

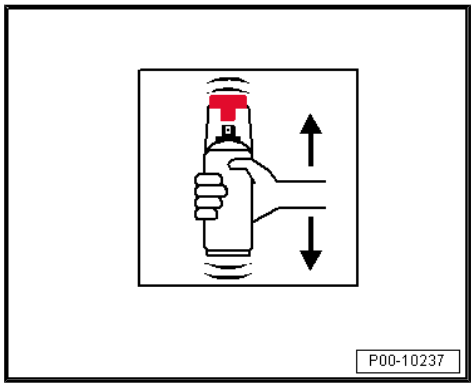


– Use a suitable cleaning agent to ensure a clean, residue-free surface prior to working over.

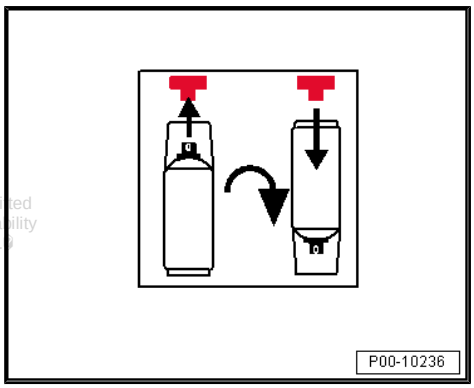
Processing

Application:

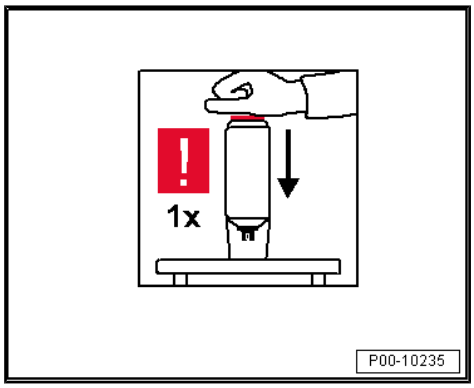
– Shake the spray can thoroughly prior to activation with hardener to ensure good wetting.



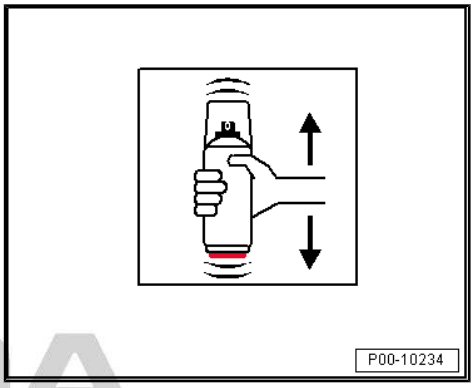
– Remove the red prelease button from the cover and place it onto the hardener mixing valve on bottom of the can.



– Press in the hardener mixing valve. When pressing in the hardener mixing valve, ensure that the can is upside down.

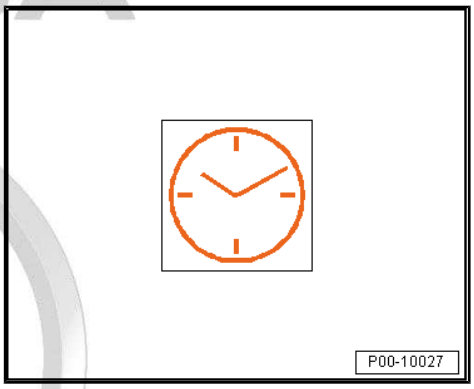


– Shake can thoroughly for at least two minutes.



Processing/pot life:

– 4 days at +20°C



Application “Spray application”

– 2 spray applications with 5-10 minute flash-off time between applications.

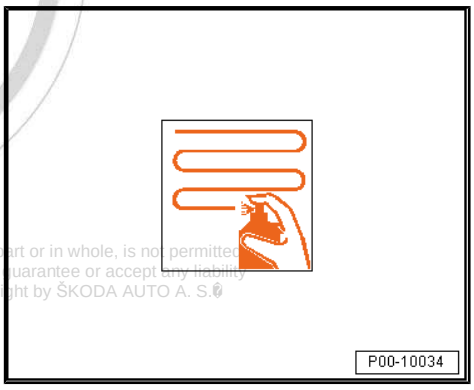
Spray distance:

– A distance of 15-20 cm must be maintained.

Reaction temperature:

– at least +15 °C

– The recommended dry layer thickness is 8-12 µm.



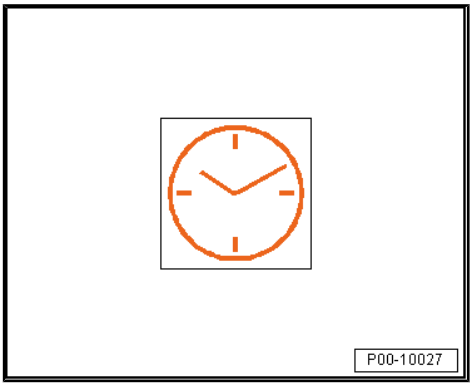
Note

If the spraying procedure has to be interrupted, ensure that you spray upside down until the valve is empty to prevent clogging the nozzle.

Drying

Air drying at +20°C room temperature:

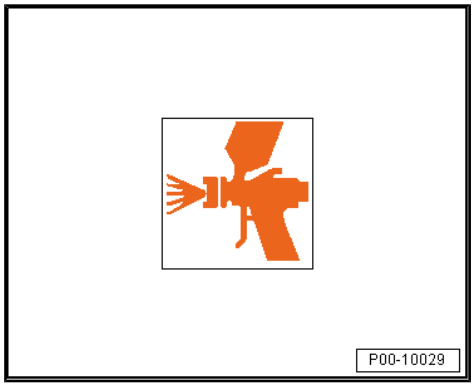
♦ Can be overpainted after 20-30 minutes



Working over

Can be overpainted with:

- 2K HS filler



Note

- *Use product only with 2K HS filler in 3-layer process.*
- *Do not use with polyester, epoxy or water-thinnable products for subsequent processing.*
- *Do not use on thermoplastic paintwork.*
- *Do not rework directly with water-based base coat or 2K HS top coat.*

Caution

Wear personal protective equipment that complies with work safety regulations.

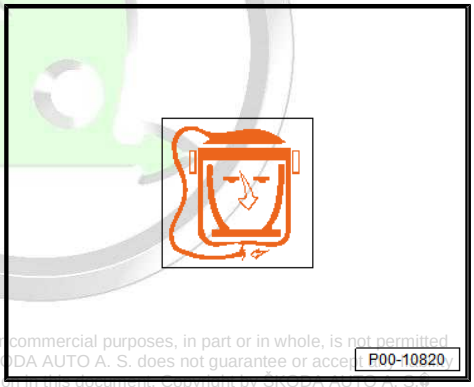
Read the safety data sheets as well as warnings on the spray can label.

The can must be shaken for approx. 2 minutes before processing and before triggering the hardener cartridge. Shake briefly once again before each further spray application.

Dispose of the fully emptied spray cans as recyclable material.

Personal protective equipment:

- Comply with the safety datasheet
- Wear personal protective equipment during the application process

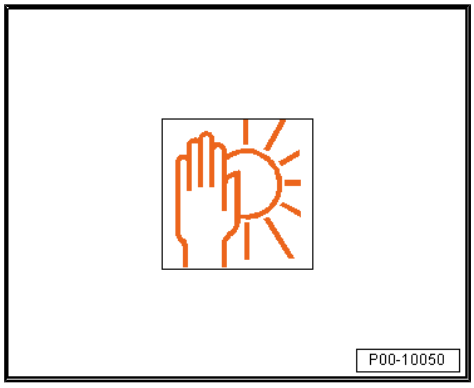


Key data

VOC value: 2004/42/IIB (e)(840)703	The EU limit for this product (product category IIB.b) in ready-to-spray form is max. 840 g/l volatile organic compounds. The VOC value of this product in ready-to-spray form is max. 703 g/l.

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.5 Silicone remover - LLS MAX 007-

Designation

- Silicone remover - LLS MAX 007-

Product description

The silicone remover - LLS MAX 007- is a water-based cleaning product, rich in active ingredients and with reduced solvent content. The raw material base consists of specific solvent combination.

Properties:

- Product and application-specific aerosol formulation
- Constant atomising pressure
- Aerosol distribution
- Maximum yield
- Professional finish
- Thorough cleaning and degreasing effect
- Promotes adhesion
- Maximum yield
- Even application

Application instructions

Application

Recommended for:

- Resource for parts painting and spot repairs
- For optimum results follow with AquaPlus water-based paints

Suitable base surfaces:

- Primed surfaces treated with filler; metal, plastic, glass; old and factory paint; painted and unpainted base surfaces

Base surface	Suitability
Primed surfaces treated with filler	+++
Factory and old paint	+++
Plastic parts	+++
Metal/glass	+++

Properties:

- Does not attach paintwork surfaces
- Removes all types of silicone; ideal cleaner for dirt and soot
- Removes body cavity preservation or wax
- Removes resin-hardened grease residues, such as on door hinges
- Removes oil and grease residues
- Ideal for dissolving tar contamination
- Removes adhesive residues such as labels

Processing

Note

- *Personal protective equipment that meets the requirements for safety at work must be worn:*
- *Breathing mask type: A2/P2*
- *Protective gloves, e.g. latex or synthetic rubber*

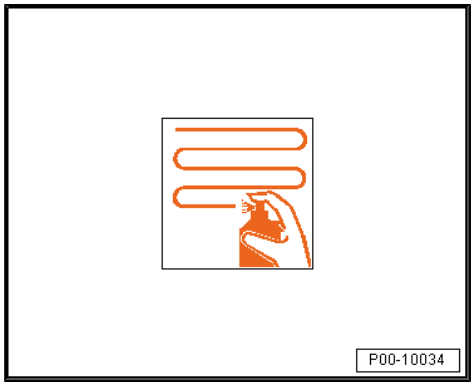
Application “Spray application”

– Spray on lightly just before applying the following coat of paint and wipe dry immediately with a clean, dry cloth.

– Do not allow silicone remover to evaporate from the surface. Only work on small areas in one go.

– Repeat if necessary if very dirty.

– Cloths must be replaced frequently and do no used dirty cloths.



Note

If the spraying procedure has to be interrupted, ensure that you spray until the valve above the head is empty.

Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

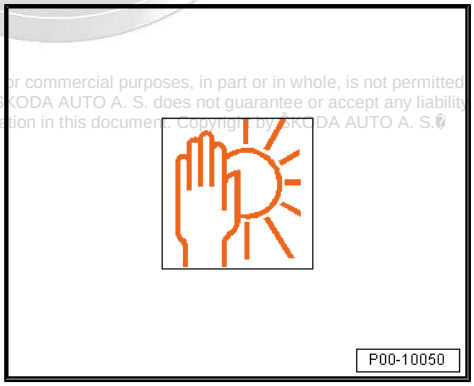
Dispose of the fully emptied spray cans as recyclable material.

Key data

Proportion of solids:	0 %
Yield:	approx. 0.75– 1.0 m²/spray can
Gloss:	Removed
VOC value:	620 g/l, 248 g/can

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.6 Slow-drying silicone remover - LLS MAX 008-

Designation

- Slow-drying silicone remover - LLS MAX 008-

Product description

The slow-drying silicone remover - LLS MAX 008- is a cleaning agent with high active ingredient content that is easy to use and evaporates without leaving residues. The raw material base consists of specific solvent combination.

Properties:

- Product and application-specific aerosol formulation
- Constant atomising pressure
- Aerosol distribution
- Maximum yield
- Professional finish
- Easy to apply
- Complete evaporation
- Removes silicone, grease, oil, wax, dirt, tar, soot
- Mild, non-aggressive solvent

Application instructions

Application

Recommended for:

- Resource for parts painting and spot repairs

Suitable base surfaces:

- Primed surfaces treated with filler; metal, plastic, glass; old and factory paint; painted and unpainted base surfaces

Base surface	Suitability
Primed surfaces treated with filler	+++
Factory and old paint	+++
Plastic parts	+++
Metal/glass	+++

Properties:

- Does not attach paintwork surfaces
- Removes all types of silicone; ideal cleaner for dirt and soot
- Removes body cavity preservation or wax
- Removes resin-hardened grease residues, such as on door hinges
- Removes oil and grease residues
- Ideal for dissolving tar contamination
- Removes adhesive residues such as labels

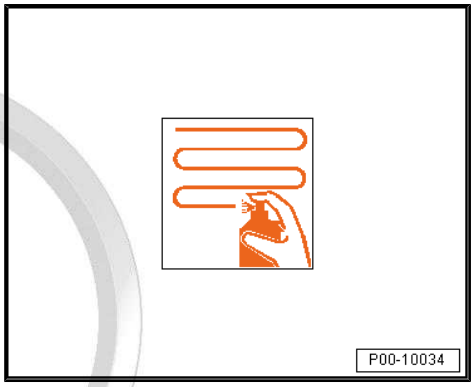
Processing

Note

- *Personal protective equipment that meets the requirements for safety at work must be worn:*
- *Breathing mask type: A2/P2*
- *Protective gloves, e.g. latex or synthetic rubber*

Application “Spray application”

– Spray on lightly once and wipe off with a clean, dry cloth.
– Leave to evaporate thoroughly off cleaned surface.
– Repeat if necessary if very dirty.
– Cloths must be replaced frequently and do no used dirty cloths.



Note

If the spraying procedure has to be interrupted, ensure that you spray until the valve above the head is empty.

Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

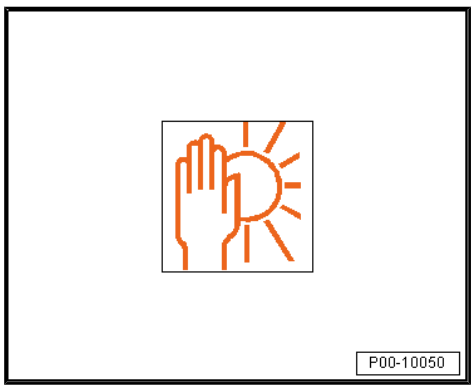
Dispose of the fully emptied spray cans as recyclable material.

Key data

Proportion of solids:	0 %
Yield:	approx. 0.75– 1.0 m²/spray can
Gloss:	Removed
VOC value:	620 g/l, 248 g/can

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.7 Blender

Designation

- Blender - LLS MAX 009-

Product description

The blender - LLS MAX 009- was designed to smooth the transitions of the paint and the edge areas of existing paint with new paint for spot-painting in automotive applications. The raw material base consists of specific resin/solvent combination.

Properties:

- Product and application-specific aerosol formulation
- Constant atomising pressure
- Aerosol distribution
- Professional finish
- Ideal for spot repairs
- Easy, time-saving process
- Particularly suitable for touching up areas for two-coat and 2K single-coat paints
- Very good partial dissolving properties
- Polishes well
- Smooth edge areas in blender paint area

Application instructions

Application

Recommended for:

- Spot repairs and touch ups

Suitable base surfaces:

- Apply right after spraying with 2K clear coat - LLS MAX 210- or 2K top coat on the transition zones in the blend area.
- The substrate in the fading edge transition zone should be generously matted with an abrasive pad (P2000-P4000).

Pretreatment:

- No special work is necessary directly before applying the blender.

Processing

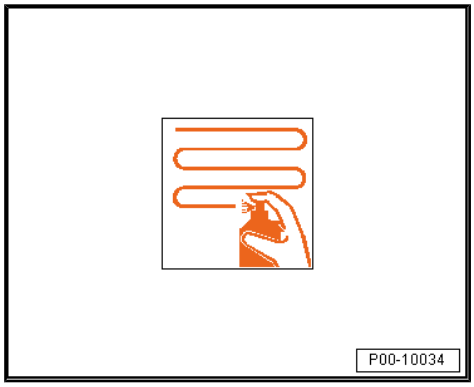
Note

- *Personal protective equipment that meets the requirements for safety at work must be worn:*
- *Breathing mask type: A2/P2*
- *Protective gloves, e.g. latex or synthetic rubber*

Application “Spray application”

– Spray in multiple, light spraying applications on the spray-mist edge zone of the 2K clear coat or 2K top coat until the transition is homogenous.

– No flash off time required for 2K clear coat or 2K top coats.



Note

If the spraying procedure has to be interrupted, ensure that you spray until the valve above the head is empty.

Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

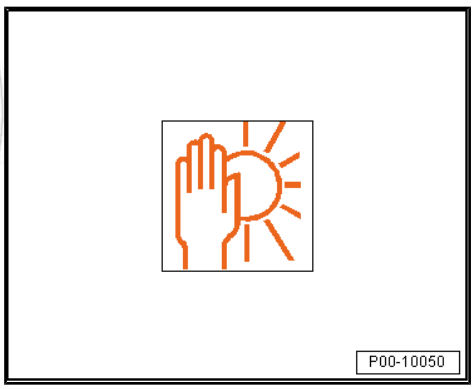
Dispose of the fully emptied spray cans as recyclable material.

Key data

Proportion of solids:	4,8 %
Yield:	approx. 0.5 m²/spray can
Gloss:	Removed
VOC value:	766 g/l, 306 g/can

Storage

The guaranteed storage stability is 36 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



3.10.8 Bonding agent

Designation

♦ Bonding agent - LLS MAX 015- , plastic

Product description

The bonding agent - LLS MAX 015- is a universal single-component bonding agent for all standard exterior plastic parts on vehicles.

Properties:

♦ Easy to apply

♦ Good bonding properties

♦ High elasticity

Application instructions

Base surface

Suitable base surfaces:

- All standard plastic parts for external installation on vehicles (PP, EPDM, ABS, PC, PPO, PA, R-TPU, PBTP, PVC, PUR, soft PUR foam, UP-GF).

Preparing base surfaces:

The base surface must be free of separating agents.

Before cleaning plastic parts, temper them for 60 minutes at +60° C to “sweat out” the separating agents.

– Clean with anti-static plastic cleaner - LVM 001 001 A2- or with the milder slow-drying silicone remover - LVM 020 100 A5- .

Note

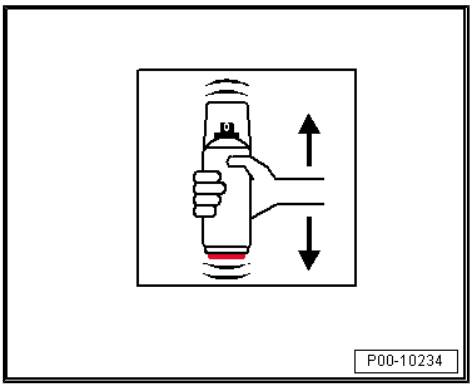
- *The extent of the cleaning required will vary according to the type and quantity of separating agent used. We recommend using an abrasive pad to help cleaning.*
- *Let the thinner evaporate (e.g. air-dry overnight at room temperature or 30-40 minutes at +60°C).*

– Prior to priming, clean again gently with anti-static plastic cleaner - LVM 001 001 A2- or slow-drying silicone remover - LVM 020 100 A5- (anti-static effect).

Processing

Application:

– Shake can thoroughly for at least two minutes.

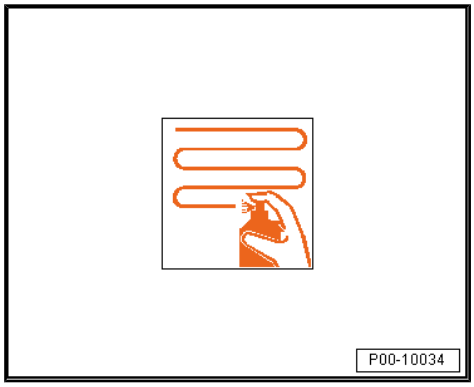


Application “Spray application”

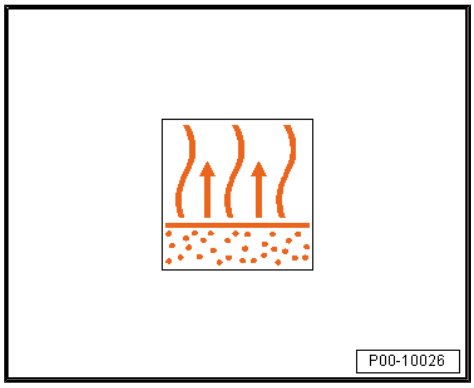
– 1 complete spray application = 1 - 2 µm

Spray distance:

– A distance of 20-25 cm must be maintained.



Flash-off time: At +20°C room temperature, approximately 10 - 15 minutes



Note

- *If the spraying procedure has to be interrupted, ensure that you spray upside down until the valve is empty to prevent clogging the nozzle.*
- *If the exposed metal area is not more than 5.0 cm in diameter, the bonding agent - LLS MAX 015- can be overpainted directly with a top coat.*

Further instructions

Fill with:

- 2K HS filler

Can be overpainted with:

- 2K HS top coat
- 2K HS clear coat

Caution

Wear personal protective equipment that complies with work safety regulations.

Read the safety data sheets as well as warnings on the spray can label.

Shake briefly before each spray application.

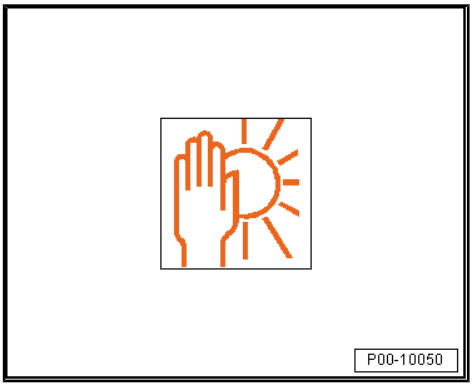
Dispose of the fully emptied spray cans as recyclable material.

Key data

VOC value: 2004/42/IIB (e)(840)730	The EU limit for this product (product category IIB.e) in ready-to-spray form is max. 840 g/l volatile organic components. The VOC value of this product in ready-to-spray form is max. 730 g/l.

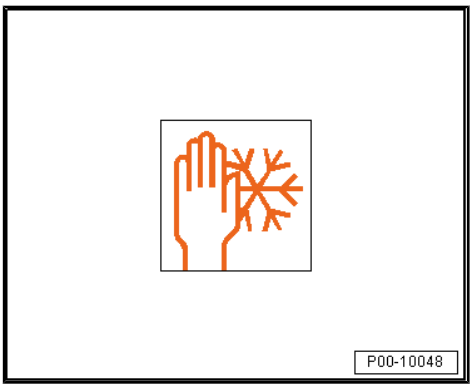
Storage

The guaranteed storage stability is 60 months from date of manufacture. It can be processed on or before the date indicated on label if stored in unopened, original containers at +20°C.



Storage conditions

The required storage temperature is +20 °C to +25 °C (must not fall below +5 °C).



4 Workshop equipment

⇒ “4.1 Tools”, page 91

⇒ “4.2 Dust-retention cloths”, page 103

4.1 Tools

E.g. ⇒ “4.1.1 Spray can filling device VAS 6425 ”, page 91

E.g. ⇒ “4.1.2 Paint thickness tester VAS 6272 ”, page 92

E.g. ⇒ “4.1.3 Paint thickness tester VAS 6197 ”, page 92

E.g. ⇒ “4.1.4 Paint thickness tester VAS 5278 ”, page 92

E.g. ⇒ “4.1.5 Stone chip tester VAS 5102A ”, page 94

E.g. ⇒ “4.1.6 Pneumatic brush grinder set VAS 6446 or VAS 6776 ”, page 95

E.g. ⇒ “4.1.7 Brush grinder set VAS 6776 ”, page 96

E.g. ⇒ “4.1.8 Suction-feed spray gun V.A.G 1538 ”, page 97

E.g. ⇒ “4.1.9 Infrared heater VAS 6873 ”, page 98

E.g. ⇒ “4.1.10 Stand VAS 6873/1 ”, page 98

E.g. ⇒ “4.1.11 Infrared heater VAS 6874 ”, page 99

E.g. ⇒ “4.1.12 Infrared heater VAS 6875 ”, page 99

E.g. ⇒ “4.1.13 Infrared heater VAS 6876 ”, page 100

E.g. ⇒ “4.1.14 Infrared heater VAS 6877 ”, page 101

E.g. ⇒ “4.1.15 Infrared heater VAS 6878 ”, page 102

E.g. ⇒ “4.1.16 Infrared heater VAS 6879 ”, page 103

4.1.1 Spray can filling device - VAS 6425-

Designation

- Spray can filling device - VAS 6425-

Product description

The spray can filling device is a pneumatic filling device for filling paint spray cans with premixed base coats and top coats without the need for cleaning. The device is suitable for filling 1K FillClean spray cans - LLS MAX 100- .

Size

- Diameter: 132 mm
- Height: 366 mm
- Height of door: 123 mm
- Filling cylinder: Diameter 135mm, height 65mm, max. fill volume 100ml
- Dimensions of baseplate: 250 x 250 x 2 mm

Technical data

- Pneumatic filling principle
- Filling pressure: 8 - 10 bar/100 - 130 psi
- Breaking point: approx. 60 bar / approx. 870 psi
- Application temperature: +5 °C to 50 °C
- Gross weight: 2.23 kg

- Net weight: 4.00 kg

Items supplied

- Spray can filling device including metal cylinder
- Air pressure hose including connection coupling
- Securing bolt with washer
- Baseplate
- Adapter for 250ml cans

4.1.2 Paint thickness tester - VAS 6272-

Designation

- Paint thickness tester - VAS 6272-

Product description

The paint thickness tester VAS 6272 is a combination tester for damage-free measurements of paint thickness on steel/ferrous and non-ferrous metals. The menu navigation and easy calibration/setup of new parameters make this an ideal unit for workshops and quality assurance measures. The ergonomically shaped appliance with integrated measuring probe and simple operation allow test results with the highest of precision.

Technical data

Measurement range: Infinitely variable from 0 to 3500 µm

Items supplied

1 tester

4.1.3 Paint thickness tester - VAS 6197-

Designation

- Paint thickness tester - VAS 6197-

Product description

Fully electronic paint thickness tester with two independently functioning probes and LCD display. Measurements are possible on several types of metallic base surfaces. This includes all non-magnetic layers on steel or iron, as well as all isolating layers on non-ferrous metals such as aluminium and copper. Calibration is not necessary, as the tester uses Hall sensor technology.

Technical data

Measurement range: 0-5000 µm for both sensors

Items supplied

- Paint thickness tester
- Case
- Levelling plates
- Battery

4.1.4 Paint thickness tester - VAS 5278-

Designation

- Paint thickness tester - VAS 5278-

Product description

The paint thickness tester provides precise and damage-free paint thickness measurement on steel/iron and non-ferrous metals. The electronic tester with LCD digital display displays measurement data via selection on the menu.

Technical data

- Infinitely variable measurement range: 0 - 5000 µm or 0 - 200 mils
- Base tolerance: +/- 1 µm or +/- 0.06 mils
- Temperature range: 0 °C - 60 °C
- Power supply: 9 volt battery
- 4 digit LCD display

Items supplied

- 1 tester for steel/iron
- 1 tester for non-ferrous metals
- 1 service bag
- 2 zero plates
- Operating instructions

4.1.5 Stone chip tester - VAS 5102A-

Designation

- Stone chip tester - VAS 5102A-

Product description

The stone chip tester - VAS 5102A- has been developed by VW AG and allows the user to recognise whether paint damage is the result of a fault in the material/processing or whether it has been caused by excessive mechanical stress, for example stone chipping or scratching. The test is based on the simulation of the average stress encountered in everyday road traffic and caused by high-speed impact with low-mass objects, for example sand or grit.

Note

- *The testing procedure is described in detail in the catalogue "Assessment of Vehicle Paintwork".*
- *The unit is subject to an annual inspection by the manufacturer. A charge will be levied for this service.*

Items supplied

- 1 stone chip tester with battery-powered metering device, pressure regulator and hose
- 1 mains adaptor
- Calibration stands with test scales
- Flashlight
- Film with angles marked
- Adhesive tape, 25 mm wide
- Spatula and scissors
- Granulate feeder with 10 x 100 g granulate
- Hard inlay case with rollers
- VW and Audi test seals, 100 each
- Operating instructions, evaluation scale, test certificate, test schedule

4.1.6 Pneumatic brush grinder set - VAS 6446- or -VAS 6776-

Designation

- Pneumatic brush grinder set - VAS 6446-

Product description

The pneumatic brush grinder set - VAS 6446- is designed to clean surfaces.

As an example: Removal of underseal, sealants and other adhesive materials. Removal of corrosion and paint in body area. Provides pore-deep cleaning and sand blasting effect; protects the material and has a compressing effect. Low speed.

Items supplied

- 1 pneumatic brush grinder set
- 1 holder for brush grinder strap 23/28mm
- 1 holder for brush grinder strap 11/28mm
- 1 brush grinder strap 23/28mm
- 2 brush grinder straps 11/28mm
- 3 special brush grinder straps 11/28/17 mm

4.1.7 Brush grinder set - VAS 6776-

Designation

- Brush grinder set - VAS 6776-

Product description

The device is designed to clean surfaces and remove corrosion in areas that are difficult to reach. Suitable for joints, grooves, wheel housings, flange edges, door folds etc. Pneumatically operated.

Design and features:

- A polyamide belt with wire bristles rotates in a mounting system.
- The mounting system is powered by a pneumatic drive unit.
- The accelerator rod multiplies the contact force of the bristles by a factor of four.
- Corrosion and layers are stripped down to the pores.

Technical data:

- Weight: 1.1 kg
- Thread size of pneumatic connection: 1/4" PT (G 1/4" included)
- Hose diameter: 3/8" ID (9.5 mm)
- Speed: 0-2600/min
- Flow pressure: 7.5 bar / 110 psi
- Air consumption: 14.2 CFM (400 l/min.)
- Vibration: 1.45 m/s² (EN ISO 8662-1; 8662-4)
- Sound pressure level: 84 dB (DIN 45635-21; ISO 3744)

Items supplied

- 1 brush grinder drive unit
- 1 x 11mm mounting system VAS 6446/2
- 1 swivel joint VAS 6446/9
- 1 air pressure regulator VAS 6446/8
- 2 brush grinder belts VAS 6776/1
- 2 brush grinder belts, left VAS 6776/2
- 2 brush grinder belts, right 6776/3
- 2 brush grinder belts, stainless steel VAS 6776/4
- 2 accelerator rods, including arm for use with brush grinder belt for stainless steel
- 1 hard shell case

Spare parts

- Brush grinder belt - AS 6776/1- ASE 36308300000
- Brush grinder belt - VAS 6776/2- ASE 36308400000
- Brush grinder belt - VAS 6776/3- ASE 36308500000
- Brush grinder belt - VAS 6776/4- ASE 36308600000
- Accelerator rod - VAS 6776/5- ASE 46308700000

- Accelerator rod - VAS 6776/6- ASE 46308800000

4.1.8 Suction-feed spray gun - V.A.G 1538-

Designation

- Suction-feed spray gun - VAG 1538-

Product description

For sealing cavities in all new and used cars and for applying underbody sealant.

Design and features:

Special gun with safety check valve and quick release coupling for probe mounting.

- Max. spray pressure: 10 bar
- Air connection thread: R 1/4
- Air consumption: approx. 100 l/min
- Weight: 1,300 g

Items supplied

- Suction-feed spray gun
- 1 litre steel can, painted
- Flexible hook probe - V.A.G 1538/1-
- Nylon probe - V.A.G 1538/2-

Spare parts

- Flexible hook probe - V.A.G 1538/1-
- Nylon probe - V.A.G 1538/2-

Note

Recommended accessories can be found on the ⇒ Volkswagen Service website under Workshop Equipment, Workshop Equipment Catalogue .

4.1.9 Infrared heater - VAS 6873-

Designation

- Infrared heater - VAS 6873-

Product description

The infrared heater is used to dry filling compound, filler, base coat, top coat and clear coat quickly for minor repairs.

Technical data:

- 220-240 V, 1 PH + PE
- 4 A

Items supplied

Complete hand-held heater with plug and operating instructions

Spare parts

Stand - VAS 6873/1- ASE 434 392 00 000

Note

Follow the manufacturer's operating instructions.

4.1.10 Stand - VAS 6873/1-

Designation

- Stand - VAS 6873/1-

Product description

Stand - VAS 6873/1- with timer

Technical data:

- 220-240 V, 1 OH + PE

Items supplied

Complete stand with timer and assembly instructions

Note

Follow the manufacturer's assembly instructions.

4.1.11 Infrared heater - VAS 6874-

Designation

- Infrared heater - VAS 6874-

Product description

The infrared radiator is used to dry filling compound, filler, base coat, top coat and clear coat on vertical surfaces with 2 timers to control flash-off and hardening periods.

Technical data:

- 230 V, 1 PH + PE
- 3 kW
- 13 A

Items supplied

Complete heater with stand, assembly instructions and operating instructions

Note

Follow the manufacturer's assembly and operating instructions.

4.1.12 Infrared heater - VAS 6875-

Designation

- Infrared heater - VAS 6875-

Product description

The infrared radiator is used to dry filling compound, filler, base coat, top coat and clear coat on vertical and horizontal surfaces with 2 timers to control flash-off and hardening periods.

Technical data:

- 230 V, 1 PH + PE
- 3 kW
- 13 A

Items supplied

Complete heater with stand, assembly instructions and operating instructions

Note

Follow the manufacturer's assembly and operating instructions.

4.1.13 Infrared heater - VAS 6876-

Designation

- Infrared heater - VAS 6876-

Product description

The infrared heater is used to dry filling compound, filler, base coat, top coat and clear coat on vertical and horizontal surfaces.

- Short-wave infrared heater with cassette
- 2 output stages with 12 preprogrammed settings and 3 user-defined programs with automatic timer control
- Automatic distance measurement

Technical data:

- 400 V, 3 PH + PE
- 3 kW
- 5 A
- Fuse: 16 A, slow-blow

Items supplied

Complete heater with stand, assembly instructions and operating instructions

Note

Follow the manufacturer's assembly and operating instructions.

4.1.14 Infrared heater - VAS 6877-

Designation

- Infrared heater - VAS 6877-

Product description

The infrared heater is used to dry filling compound, filler, base coat, top coat and clear coat on vertical and horizontal surfaces.

- Short-wave infrared heater with cassette
- 2 output stages with 12 preprogrammed settings and 3 user-defined programs with automatic timer control
- Automatic distance measurement

Technical data:

- 400 V, 3 PH + PE
- 6 kW
- 9 A
- Fuse: 16 A, slow-blow

Items supplied

Complete heater with stand, assembly instructions and operating instructions

Note

Follow the manufacturer's assembly and operating instructions.

4.1.15 Infrared heater - VAS 6878-

Designation

- Infrared heater - VAS 6878-

Product description

The infrared heater is used to dry filling compound, filler, base coat, top coat and clear coat on vertical and horizontal surfaces.

- Short-wave infrared heater with cassette
- 12 preset programs and 3 free programs
- Fully automatic drying procedure with pyrometer for temperature control, laser pointer and automatic distance measurement

Technical data:

- 400 V, 3 PH + PE
- 6 kW
- 9 A
- Fuse: 16 A, slow-blow

Items supplied

Complete heater with stand, assembly instructions and operating instructions

Note

Follow the manufacturer's assembly and operating instructions.

4.1.16 Infrared heater - VAS 6879-

Designation

- Infrared heater - VAS 6879-

Product description

The infrared heater is used to dry filling compound, filler, base coat, top coat and clear coat on vertical and horizontal surfaces.

- Short-wave infrared heater with two cassettes
- 12 preset programs and 3 free programs
- Fully automatic drying procedure with pyrometer for temperature control, laser pointer and automatic distance measurement

Technical data:

- 400 V, 3 PH + PE
- 12 kW
- 9 A
- Fuse: 16 A, slow-blow

Items supplied

Complete heater with stand, assembly instructions and operating instructions

Note

Follow the manufacturer's assembly and operating instructions.

4.2 Dust-retention cloths

E.g. ⇒ "4.2.1 Duster VAS 6177 ", page 103

E.g. ⇒ "4.2.2 White polishing cloth VAS 6176 ", page 104

E.g. ⇒ "4.2.3 Professional cleaning cloth VAS 6006 ", page 105

4.2.1 Duster - VAS 6177-

Designation

- Duster - VAS 6177-

Product description

Duster with extremely effective soft tack properties for critical cleaning tasks. Unlike other tack cloths, this cloth does not leave any chemical residue on the surface or on the hands. This ensures that the surface to be treated is free from adhesive residue and fingerprints. The risk of streaks forming is considerably reduced as a result, particularly when using water-based paints. Modern fleece weave technology means that this cloth is lint-free and is not prone to fraying. It is also highly suitable for plastic repairs as it reduces the static charge, which attracts small plastic particles.

Size: 380 × 430 mm

Applications

- Cleaning before applying further layers
- Removal of dry particles before applying the top coat

- Cleaning of plastic parts

Items supplied

6 cloths per bag, 30 bags per box

Folded into 4 in sealed bags with zip

4.2.2 White polishing cloth - VAS 6176-

Designation

- White polishing cloth - VAS 6176-

Product description

Extremely soft cloth for gentle, accurate polishing. The combination of viscose and polyester fibres makes it particularly fleecy. The special fleece weave structure prevents the fibres pulling, as well as fraying and linting. As the cloth does not contain additives that cause streaking, the polishing cloth is also ideal for preparing chrome, glass and parts of interior equipment.

Size: 400 × 365 mm per cloth

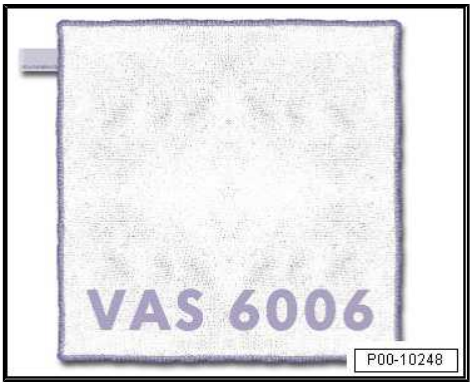
Applications

- Manual polishing
- Finishing work on exterior surfaces
- Interior cleaning

Items supplied

275 fabric cloths in a tear-off roll in dispenser box

4.2.3 Professional cleaning cloth - VAS 6006-



Designation

- Professional cleaning cloth - VAS 6006-

Product description

The cloth is suitable for dry cleaning surfaces (dust and micro dust). It also has anti-static properties when used to clean plastics, glass, paintwork, monitor screens etc. Its cleaning properties are even more impressive when moistened. Every smooth surface is deep cleaned in just one pass. The cloth is free from chemicals and is durable. It delivers maximum cleaning effect without the need for chemical impregnating agents. However, if required, all types of cleaning solution can be used with the cloth. The processed fibres are split to increase the surface structure of the cloth by 1400. The fibres have a capillary effect, which binds the removed dirt deep in the cloth. The cloth therefore remains clean and effective and is always ready for all kinds of other tasks. Friction from the cloth against the surface polarises dust, dirt, grease and fluid molecules, which are then loosened from the surface without additional chemical agents.

Size: 320 × 320 mm

Applications

- Cleaning bodywork surfaces in preparation for painting
- Removing wax residues from preservation coatings
- Removing dirt in vehicle interior from textiles and leather
- Cleaning windows and mirrors
- Cleaning driver's seat
- Degreasing metal parts such as tools etc.
- Many other applications at the office and at home

Items supplied

1 cloth, 320 x 320 mm, in plastic cover