

Aluminium-Burnishing

User Manual

General Information

Ballistol Aluminium Burnishing is used for blackening (burnishing) aluminium. It is used for various small parts in the automotive industry, in toolmaking and mechanical engineering as well as on gun parts. However, the appearance of decorative objects is also improved. For this purpose, you can either blacken specific areas using aluminium burnishing as a brush application or black complete aluminium parts using an immersion bath.

Aluminium burnishing creates a black burnishing layer on the surface through a chemical colouring reaction. As this is specifically oxidised, the surface must first be prepared for the aluminium burnishing process itself. Both the natural oxide layer and other impurities on the aluminium can be removed by mechanically pre-cleaning the workpiece. Depending on the aluminium alloy, the colour of the black oxidation can then vary from dark grey to black.

- Alternatively, the aluminium burnishing can also be used as a 1:1 dilution with water.
- If mechanical pre-cleaning of your workpiece is not possible, we recommend pre-treatment with Ballistol aluminium primer (conditioner).

Application

Aluminium surfaces contain a transparent, naturally occurring oxide layer that prevents direct blacking of the surface and must therefore be removed before blackening. Therefore, make sure that the surface of the aluminium is thoroughly cleaned before blackening and ensure that there is no oil, grease, wax, flux residue, mould release agent or dust. This can be achieved, for example, by using steel wool and then cleaning with residue-free solvents such as acetone, Ballistol Brake and Parts Cleaner, Ballistol Gun Parts Cleaner or Ballistol Cold Degreaser. Ballistol Alu-Primer is also ideal for pretreating the aluminium surface. Once the metal has been thoroughly cleaned, avoid direct contact with your hands. We therefore recommend wearing gloves from this step onwards to prevent the risk of renewed soiling (e.g. grease/sweat from the skin). Apply the burnishing within 30 minutes, otherwise a new oxide layer will form, which will prevent further burnishing of the aluminium.

The aluminium burnishing is ready to use and formulated so that it can be applied at room temperature (ideally at 20 °C). The method of application depends on the size and shape of the workpiece. The following procedures are recommended:

Application as brushing and immersion burnishing using steel wool or abrasive fleece:

Step 1 Rub the oxide layer off the surface of the aluminium piece with steel wool. Then remove any steel wool residue with water and a cloth. Alternatively, the aluminium piece can also be cleaned with a sandblaster if it is to be burnished immediately afterwards.

Step 2 Apply the burnishing solution to the aluminium piece three times for 20 to 30 seconds each time using a brush or dip it into the burnishing solution, also three times for 20 to 30 seconds each time. Clean the surface between each repetition with a fresh cloth (dabbing).

Step 3 Clean the surface with distilled water.

Step 4 To ensure that the object retains its dark, black lustre for a long time, we recommend "sealing" with Ballistol Gunex Gun Oil or Ballistol Premium Rust Protection Oil. This protects the surface from the effects of the weather.

Application as immersion burnishing using Ballistol Aluminium Primer:

Step 1 Make sure that the surface of the aluminium piece is clean and free of grease and dust. We recommend using Ballistol Brake and Parts Cleaner, Ballistol Gun Parts Cleaner or Ballistol Cold Degreaser.

Step 2 Immerse the work piece in the aluminium primer for 20 to 30 seconds and then dab away the remaining liquid with a clean, dry cloth.

Step 3 Dip the aluminium piece three times into the burnishing solution for 20 seconds each time. Clean the surface between each repetition with a fresh cloth (dab) and distilled water.

Step 4 To ensure that the object retains its dark, black lustre for a long time, we recommend "sealing" with Ballistol Gunex Gun Oil or Ballistol Premium Rust Protection Oil. This protects the surface from the effects of the weather.

Suitability test

Ballistol aluminium burnishing is suitable for surfaces made of aluminium and aluminium alloys. The application form of the aluminium burnishing also depends on the type of alloy you want to burnish. To give you an idea of the suitability of our aluminium burnishing, we have tested common aluminium alloys and summarised the results in the table below. We recommend that you always test the blackening process beforehand on an inconspicuous area or a comparable object in order to assess which of the above application methods is most suitable for your workpiece.

Technical description of the aluminium alloy	Aluminium alloy	Quality of burnishing layer (undiluted) after treatment with steel wool	Quality of burnishing layer (1:1 diluted) after treatment with steel wool
EN AW-1050A	Al99,5	medium*	good
AW-2007	AlCuMgPb	good	medium*
AW-6082	AlMgSi1	medium*	medium*
AW-2017A	AlCuMg1	weak*	weak*
AW-5754	AlMg3	good	good
AW-5083	AlMg4.5Mn	good	good
AW-7075	AlZnMgCu1,5	good	good
AW-6060	AlMgSi0,5	good	medium*

* For these aluminium alloys, we particularly recommend using the immersion method with prior application of the aluminium primer.

Safety Instructions

Please observe the important instructions on the packaging and labelling of the product as well as the safety instructions in the associated safety data sheet before use. During use, it is strongly recommended to wear protective gloves, protective clothing, eye protection and face protection. In addition, adequate ventilation should be provided to minimise exposure to reaction gases that may be released during the burnishing process. Always store the product and its packaging safely in a dry, light-protected and well-ventilated place, away from heat, fire and naked flames.

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