

METAL BLACKENING

What is Metal Black and why Blacken?

In simple terms, Metal Blackening involves the replacement of a surface skin of base metal by a Selenium compound. Please note the term 'base metal'. This means exactly what it says. If you try to blacken metals that are oxidized, greasy and spotted with etch resist, you will experience disappointing results. Blackening is carried out for a variety of reasons. Modellers mainly use it for giving rail, wheels, buffers, couplings, coupling rods, etc. a permanent 'work worn or rusty' look, where paint would hide delicate detail or rub off. Brass is notoriously difficult to paint and blackening beforehand not only give a slightly better 'key' to the paint, but when it does chip off, you do not see bright spots of unpainted brass showing.

There are different types of Metal Black and each works on a particular metal to produce a black or brown patina. Although types are named after common metals, brass, nickel silver, Whitemetal, solder and aluminium, some are better than others on different metals. The table below gives a list of some metals and the successive treatments, which have been satisfactory. Be aware though, that different alloys of the same base metals will often perform quite differently.

There are for example, seven common grades of Nickel Silver, at least twelve varieties of Brass and thirty five of Aluminium.

Further improvement can usually be achieved by light burnishing after it is dry. Mixing metal blacks will not improve their performance. However, subsequent treatment with alternative metal blacks can produce other useful effects. For example, treating whitemetal with "solder" then "whitemetal" can give a rusty finish.

Metal.	1 st Application.	2 nd Application - if required.
Mild Steel.	Steel.	
Brass.	Brass	Nickel Silver.
Nickel.	Silver.	
Phosphor Bronze.	Brass	
Copper.	Aluminium.	Steel.
Whitemetal.	Steel.	Solder.
Lead.	Solder.	
Pewter.	Solder.	
Chromium.	Aluminium.	Steel.
Nickel.	Aluminium.	Nickel Silver.
Aluminium.	Aluminium.	

Application by brush or cotton bud is preferred. Immersion is useful but can give rise to flaking. If flaking occurs or the effect is fast and rather coarse, the addition of water to double the volume will give a slower and finer finish. Plunging the treated metal into water will halt the process - useful when you want just the lightest amount of surface discolouration.

Please be aware that Brass can be tricky to blacken. Depending on the alloy, it can sometimes blacken quickly but then flake off. Should this happen, dilute the metal black 50/50 with water. Aluminium will often not give a true black, but will remain a dark brown.

Bob Alderman is an internationally known 7mm modeller. Here is his approach to blackening metals.

CHEMICALLY BLACKENING COMPONENTS

By Bob Alderman.

Steel parts.

Blackener - Carr's Metal Black for Steel.

Buffers.

1. Polish the head to remove any tool marks and the parting-off pip in the centre. I use the modelling drill and some emery paper 120 grit. Use the drill at mid speed.

This process will also remove any oils or grease left from the manufacturing process.

2. Take a cotton bud and apply the blackener. Only apply it to the head, front and back and the shank immediately behind the head. Avoid the area where the spring sits.

The blackening is nearly instantaneous. Rub the bud over all the areas to ensure it is an even colour.

3. Rinse in hot water and allow to dry.

4. There may be a whitish residue left after this. The next stage will see to that.

5. When dry burnish the head with a brass wire brush. The black will shine a little after this.

6. I have found that the rear of the head and the shank may turn rusty after a time. Let it, it looks realistic!

7. Assemble with a little oil on the spring inside the body.

Wheels.

1. Do any necessary truing and remove any plastic moulding pips.

2. Polish the rim with a Carr's Track Rubber. Again I mount the wheel on an axle and spin it at mid speed in the modelling drill. The block is pressed into the tyre. It conforms to the shape. The tyre becomes shiny.

3. When the set has been prepared I apply the blackener with a cotton bud. Around the tread, then the outside of the rim and the back of the flange. Again blackening is nearly instantaneous.

4. Rinse in hot water and allow to dry.

5. There may be a whitish residue left after this. The next stage will see to that.

6. Burnish the tyre with a brass wire brush. Again the steel will shine after this.

Axles.

1. Again polish them to remove any oil residues. For Slater's do the necessary retouching of the square ends to make an easy fit on the wheels.
2. Apply the blackener with a cotton bud ensuring an even coating. I DO NOT blacken the square ends on Slater's axles.
3. Rinse in hot water and allow to dry. Burnish with a brass wire brush. Again the steel will shine after this.
4. If Slater's axles then you MUST ensure the screw hole is dry. I insert a hot soldering iron into the hole and wait until the axle is too hot to hold! Do both ends.
When cool insert a drop of thin oil into the hole. This will ensure the future removal of the wheel retaining screw.

Brass and nickel silver parts.

Blackener - Carr's Metal Black for Brass..

1. Prepare the component. Remove etching cusps and lightly abrade with fine emery or a Carr's Track Rubber. Note You cannot solder a blackened surface!
2. Clean the surface with Carr's Surface Conditioner. It changes colour, slightly yellow and the surface goes matt.
3. Rinse in hot water and allow to dry.
4. Apply the blackener. Either immerse in the solution or apply with a cotton bud. If immersing then hanging the parts on a fine wire aids retrieval. Do not leave parts in the blackener too long.
If using a cotton bud gentle continuous rubbing may be needed. Replenish the bud every so often.
6. If the solution is too strong the surface will blacken and flake. Diluting the blackener will prevent this.
7. Rinse in hot water and allow to dry.

Post-Blackening Treatment.

In themselves, metal blacks will tend to guard against corrosion. However, under severe circumstances, a thin coating of Electrofix will provide more permanent protection.