



# TIFOO

## Bluing Bath BLACK DEVIL

# MANUAL

# Use of Black Devil bluing bath

## Bluing process

Bluing interestingly means the blackening of metal (iron or steel). The real "hot bluing method" is done by dipping the metal into a boiling solution of sodium hydroxide and sodium nitrate and then putting it into cold oil for sealing. This is how you create a black passivation that protects from rust and oxidation. The "cold bluing method" that you can carry out with this product is based on selenium. Selenium reacts with these metals in a comparable way and creates a selenium-metal compound on the surface that creates a black coating like with the "hot bluing method".

Please keep in mind that these selenium compounds are more toxic than oxygen-oxide layers. This is why objects that have been treated with cold bluing should be at least treated with varnish or oil (e.g. 02-44-00250 bluing oil on [www.tifoo-plating.com](http://www.tifoo-plating.com)) after bluing.

## Instructions for use

Abrasion-resistant, spotless and even metal colourings are only possible when the base metal is free from oxides and greases. It can occur for example that residues of the bluing bath are sweating out of the pores and create spots, spallings or rust. Follow the indicated steps to obtain perfectly blackened surfaces.

## Preparation / Degreasing

The workpieces have to be sufficiently degreased and free from tinder, oxides and other soilings. Get rid of greasy and oily soilings of the surface by using an alkaline or solvent-containing bath: the Tifoo Bluing Degreaser. Dip the object in the degreaser bath for about 3 to 10 minutes. In order to get rid of rust or flakes you should use an acidic bath. You can get rid of more persistent depositions mechanically with a piece of steel wool, an abrasive sponge or an ultrasonic cleaner. Don't forget to wash the object thoroughly with water after this step.

## Washing steps

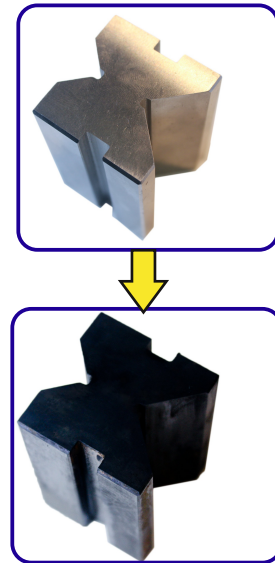
After every immersion into a bath of the Tifoo bluing set, you should wash the workpieces thoroughly with fresh water. Put them in a washing bath for about 1 to 2 minutes. This step avoids the "carry-over" of chemicals.

## Conditioning

For rusty and hardened objects, we strongly advise preparing the workpiece with the conditioner. The Tifoo Conditioner is used without diluting with the objects dipped in for 3 to 5 minutes. The conditioner is important for good results on chrome-containing steel. Wash the object again.

## Bluing

By applying the bluing, the workpiece will obtain its colouring. Dip the prepared objects in the bluing solution at room temperature for some minutes. We recommend washing the object again after the first treatment, wipe them with some cloth and repeat the bluing treatment at least one more time. With that procedure, you will have a deeper bluing.

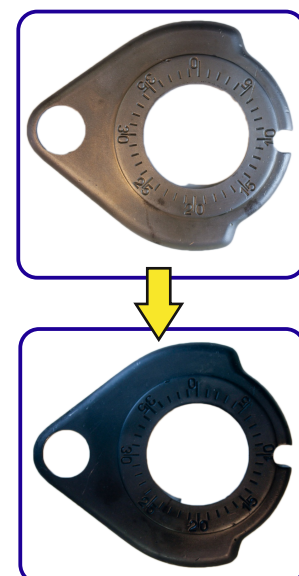


### Please note the following guidelines:

For **low alloy steels** (normal construction steel, etc.), the bluing concentrate should be diluted with water to a proportion of 1:3 and let work in for 3 to 5 minutes.

For **steels with a chrome content of under 3%**, it should be diluted to a proportion of 1:2 and let work in for 6 to 8 minutes.

For **steels with a chrome content of 3% to 12%** and for steels with a **nickel content of up to 0,6%**, you can use the undiluted concentrate while letting it work in for 8 to 10 minutes.



### Dehydration oil

The conservation of the layer is achieved by the Tifoo Dehydration oil. Dip the object according to its surface in the undiluted oil for up to 30 minutes.

### Drying

The complete drying after the oil bath needs about 12 to 24 hours.

### Security notes

Causes severe skin burns and eye damage. May cause an allergic skin reaction. Harmful to aquatic life with long lasting effects. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Avoid breathing dust/fume/gas/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF ON SKIN: Wash with plenty of soap and water. Avoid release to the environment. Dispose of contents/container to adequate disposal. Contains selenium dioxide. Selenium dioxide can be directly absorbed through the skin, stimulating the nerves throughout the system. Avoid contamination. Do not use on aluminium, may cause toxic hydrogen selenide.

### Troubleshooting

### Videos

On our Tifoo YouTube channel (just type “Tifoo” into the search bar) or on our homepage ([www.tifoo.de/videos](http://www.tifoo.de/videos)), you can watch an animation and a video about how to perform the “cold” bluing process correctly.

The results of your bluing process are not ideal? A good bluing result has been achieved on ST52. Additionally, you will have a great look by using linseed oil. Have a look at this little troubleshooting guide:

### Problem:

Uneven, stained blackening

### Possible reasons:

- Insufficient cleaning --> degrease / clean longer; has the degreaser been fresh?
- Insufficient rinsing between the individual baths

### Problem:

Blackening can be wiped away

### Possible reasons:

- Insufficient cleaning or degreasing
- Possibly incompatible steel with a too high chrome content or other stainless steel --> verify the steel variety
- Temperature of the bluing bath is too low --> is the bath at room temperature (20 to 25°C) ?

## Waste disposal

Please get informed at your local recycling- and waste disposal centre about how to proceed. Please show the label to the responsables of the recycling centre.



## TIFOO - a brand of the group

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