

F 1310

BRÜN 5501

Brün 5501 is a product in powder form to black oxidise metal surfaces. It is used in a **quick-immersion black oxidation procedure** according to the German standard **DIN 50938**.

Brün 5501 is especially suited for uniform black colouration of **steel, iron and carbon nitrified surfaces**, especially improved black oxidation of **sheet metal, rolled and pulled material** will be achieved.

Application of **Brün 5501** offers unconditional **dimensional accuracy** and **good corrosion protection**. The layer is **resistant to bending and abrasion, and has a smooth, unstructured appearance**.

Brün 5501 baths are of low viscosity.

Brün 5501 contains a high-grade long term spray protection to improve working conditions.

Never immerse light metals, zinc and zinc alloys into Brün 5501, it would cause decomposition of metals due to hydrogen development.

Danger of boil-over => Black oxidation bath becomes unusable.

Delivery form: in 25 kg plastic sacks

Application: immersion process

For higher requirements on corrosion protection, we recommend the 2-bath black oxidation process.

Brün 5501 is dissolved in cold water – exothermic reaction => heat formation!

The required amount of salt may only be added slowly and in small portions to the bath while „stirring“, never add it at once to the water. **Never carry out the dissolving procedure in reverse!**

The heater may be turned on only after the product is completely dissolved!!

For new preparation and subsequent **supplementation** by **adding black oxidation salt**, it is advisable to insert an empty immersion strainer into the bath to avoid chemical deposits in sludge or between heater pipes.

By lifting and lowering the strainer several times, the black oxidation chemicals will easier mix into the solution.

Preparation: 1 part cold water and 1 part **Brün 5501**

bath useful volume x 1.5 = bath useful mass

bath useful mass / 2 = quantity of water = quantity of salt

For example: 100 l x 1.5 kg/l = 150 kg
150 kg / 2 = 75 kg water = 75 kg salt

100 l bath useful volume = 150 kg bath useful mass = 75 kg water + 75 kg salt

Process sequence: I. 1-bath process

pre-treatment (degreasing)
rinsing
pickling
rinsing
black oxidation
rinsing
hot rinse
aftertreatment

II. 2-bath process

pre-treatment (degreasing)
rinsing
pickling
rinsing
black oxidation I
rinsing
black oxidation II
rinsing
hot rinse
aftertreatment

Parameters:

Working temperature: Black oxidation bath I: 138–142 °C
Black oxidation bath II: --

138/140 °C
144/146 °C

Treatment time: Black oxidation bath I: 5–20 min.
Black oxidation bath II: --

approx. 10 min.
approx. 10 min.

Concentration: Black oxidation bath I:

1 part water
+ 1 part **Brün 5501**

Black oxidation bath II: --

1 part water
+ approx. 1.3 parts **Brün 5501**

Rinse: After every step, rinse thoroughly.

Preparation: The metal surfaces to be black oxidised must be **clean and free of grease**.
For degreasing we recommend our **Alkalit products**.
For many surfaces it is recommended to use acidic pickle for activation. For this purpose, we recommend our **Rostalit products**.

Aftertreatment: The following products are available for aftertreatment:
DEWE Fluid dewatering agent
Korrosin corrosion protection – hot boiling oil
Emulsin corrosion protection – emulsion

Error sources and remedies:

As a matter of principle, check the thermometer to ensure it is correct

1. The colouration of the black oxidation bath is insufficient:
 - boiling point of the bath is too low => add **Brün 5501**
 - increase immersion time
 - the workpieces are not sufficiently degreased or pickled, potentially due to foreign particles such as aluminium or zinc.
2. The colouration of the black oxidation bath is auburn to green:
 - boiling temperature is too high
 - add water until the desired boiling point is reached

Maintenance and supplementation:

The black oxidation bath must be desludged in regular intervals. The functional efficiency of the technical devices must be checked regularly.

For new preparation and subsequent supplementation by adding black oxidation salt, it is advisable to insert an empty immersion strainer into the bath to avoid chemical deposits in sludge or between heater pipes.

By lifting and lowering the strainer several times, the black oxidation chemicals will easier mix into the solution.

The boiling temperature must be monitored exactly, otherwise the concentration and the boiling point will increase due to evaporation of water. In case of increasing boiling temperature, carefully add water until the desired boiling point is reached again. The bath must boil slightly when the boiling point is reached.

The corresponding temperature should then be read on the thermometer. The exact temperature setting can be made by automatic regulation with a **DEWE ATK-control unit**.

If too much water is added to the bath, the bath may foam intensely and boil over – CAUTION!

The level can decrease due to drag out loss. In that case, the bath must be supplemented with black oxidation salt. The black oxidation salt can be distributed carefully on the surface. At the same time, the required amount of water must be added carefully. The bath only needs to be changed completely if the black oxidation bath has become unusable due to contamination of acids, grease, dissolved metals such as zinc and aluminium. In that case, the colouration becomes iridescent or the colouration is completely absent.

In these cases, the black oxidation bath must be drained, properly disposed of/ recycled, the bath container must be rinsed well and a new preparation must be made.

For the **new preparation and regeneration of black oxidation baths**, we recommend to pre-dissolve the black oxidation salt and to add it in liquid form to the black oxidation bath. For this purpose, we recommend the specially designed **preparation container** with technical equipment.

This facilitates the pre-dissolving of the black oxidation salt and the addition of a 40-45% black oxidation solution into the black oxidation bath using a pump.

For detailed information, refer to the special informational sheet.



Environmental protection: According to the Federal Water Act (WHG), **Brün 5501** is a substance hazardous to water (WHC 3).

Product safety: In accordance with the German Ordinance on Hazardous Substances **Brün 5501** is subject to be labelled.



Hazard symbol:

GHS05

GHS06

Signal word: danger

For additional data, refer to the EC safety data sheet.

Protective measures:

Before application and handling of **Brün 5501**:

- observe the EC safety data sheet!
- follow the instructions for use!
- wear suitable protective clothing.

In case of contact with the eyes: rinse thoroughly with water for at least 15 min. Consult an ophthalmologist immediately.

The accident prevention regulations specified by the Professional Association Chemie (Chemistry) for handling chemical substances must be adhered to!

Containers: We recommend a container made of sheet steel St 37, available in our standard container range.

Waste water:

Do not let the product and its solutions reach the sewage system non-neutralised.

The product and its solutions and rinse water contain nitrite. It must be noted and properly detoxified during the neutralisation process. Discharge limit values must be observed accordingly!

Modern black oxidation plants work waste water free using a suitable rinse water system. Please contact us for details.

Storage of product: in accordance with the German Ordinance on Hazardous Substances (GefStoffV)

- keep container tightly closed, keep out of reach of unauthorised persons
- in closed containers made of suitable material
- in cool location, protected from moisture
- separated from incompatible substances (light metals, acids)
- under observation of regulations regarding storage and handling of substances hazardous to water
- **Brün 5501** and exposed working items have to be kept out of the reach of children
- keep away from foodstuffs, drinks and feeding stuff

Disposal:

Waste code no. AVV 11 01 07* pickling bases

Waste code no. AVV 11 03 02* other wastes

The used product and its solutions must be disposed of as hazardous waste, according to local regulations.

We offer return of waste according to § 25 ff KrWiAbfG – please contact us.

Containers must be completely emptied.

Waste code no. for contaminated packaging: AVV 15 01 10* *Packaging containing residues of hazardous substances or contaminated with hazardous substances*

Warranty:

The data given here has been provided to the best of our knowledge and is based on our practical experience and laboratory tests, however we provide no guarantee.

Since we have no influence whatsoever on any **deviating use** of our products, we shall only assume liability for the **condition as-delivered**. Our sales service and our development and applications department will be pleased to offer you advice on application issues (tel.: +49 9122 9868-19).