

TECHNICAL DATA SHEET

Tridur DB

Cr (VI) free blue passivation for zinc nickel with high corrosion resistance

Manufacturer	Atotech Deutschland GmbH
Document No.	1399
Version	07
Version date	25. Jan.2022
SAP-No.	1686783
IMDS-No. Cobalt	900924
IMDS-No. Cobalt-free	372951009
Products covered	TRIDUR DB A 2x (1689109) TRIDUR DB B (1685817) TRIDUR DB C (1687233) TRIDUR DB B2 (1690717)

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1 Process Information

- Tridur DB is a chromium (III) containing passivate for zinc nickel which is completely free of chromium (VI).
- Tridur DB is fluoride-free
- Tridur DB produces deep blue passivate layers on zinc nickel surfaces.
- Tridur DB gives excellent corrosion resistance.
- **Tridur DB** can be used for rack and barrel plating.
- Tridur DB is available as cobalt-containing or cobalt-free version.

2 Equipment

Tanks	Rubber lined steel or with lining made of polyethylene or polypropylene, PVC, PVC/Polyester-reinforced material.
Heating	Not required. If yes, heater or heat exchanger made of PTFE.
Bath Agitation	A uniform air agitation is required. An intermittent drum rotation is advantageous.
Filtration	Continuous filtration recommended. Required filter media: - acid resistant material - filter size 5 µm – 10 µm
Exhaust	Required

3 Make-Up

Cobalt-containing version:

Make-Up of 100 l	Liter	kg
DI-Water	92.5	92.5
Tridur DB A 2x	2.5*	3.2
Tridur DB B2	5.0	6.25

- Fill process tank with 60 l of DI-water and start agitation.
- Add first 5 l of **Tridur DB B2**.
- Then add 2.5 l of **Tridur DB A 2x**.
- Mix solution thoroughly.
- Adjust solution level to final working volume with DI-Water.
- After reaching the working temperature of 20 – 25 °C, adjust pH
- *If after make-up the color of the passivate layer shows yellow appearance, add **Tridur DB A 2x** in 2.5 ml/l steps, until the layer shows blue appearance.

Cobalt-free version

Make-Up of 100 l	Liter	kg
DI-Water	94	94
Tridur DB A 2x	2.5*	3.2
Tridur DB C	3.5	4.6

- Fill process tank with 60 l of DI-Water and start agitation.
- Add first 3.5 l of **Tridur DB C**.
- Then add 2.5 l of **Tridur DB A 2x**.
- Mix solution thoroughly.
- Adjust solution level to final working volume with DI-Water.
- After reaching the working temperature of 20 – 25 °C adjust pH.
- *If after make-up the color of the passivate layer shows yellow appearance, add **Tridur DB A 2x** in 2.5 ml/l steps, until the layer shows blue appearance.

In all work with Tridur DB, make sure that all regulations on operations with chromium containing solutions are carefully observed!

4 Working Parameters

Parameters	
Temperature	25 °C (20 °C – 35 °C)
pH	4.2 (4.0-4.5) measured with a temperature compensated pH meter. Adjustment is carried out with 10% NaOH or 10% HNO ₃ .
Density	Cannot be used for monitoring the bath.
Immersion Time	80 seconds (60 – 300 seconds) depends on age of bath and required color

5 Maintenance

Nominal Values	On Make-Up	During Operation
Cr(III) - Ions	1.65 g/l	1.5 - 2.5 g/l
Zinc	---	< 10.0 g/l
Iron	---	< 50 mg/l

Zn dissolution rate is approx. 0.2 g Zn per m².

Cr concentration will be increasing during throughput, sediment can occur – filtration recommended.

Before down time the pH of the passivate should be adjusted to 4.7 – 4.9!

6 Control of the pH

After addition of **Tridur DB A 2x** and **B2** the pH must be checked and if necessary adjusted with 10 % NaOH or 10 % HNO₃.

Be careful with pH decreasing. If pH drops below 3.5, passivation will be irreversible destroyed!

7 Control of the Cr(III) content

The passivation sample for analyze must be filtered before!

The Chromium(III) content of a made up passivation is:

- 1.6 g/l calculated as Cr(III).
- 25.0 ml/l calculated as **Tridur DB A 2x**.

The Cr(III) ion content is adjusted by adding **Tridur DB A 2x**.

To increase the Cr(III) - ion content by about 0.1 g/l, add 1.5 ml/l **Tridur DB A 2x**.

Consumption per 1 m² passivated surface 2.5 – 6.5 ml **Tridur DB A 2x**

7-17 ml **Tridur DB B2 (cobalt containing version)**

2-6 ml **Tridur DB C** (cobalt-free version)

drag out 100 ml/m² – 200 ml/m², extra consumption of 5 – 6.5 ml **Tridur DB A 2x** per m² to achieve same color.

It is recommended to use automatic dosing. Depending on drag-out a higher consumption might occur during barrel plating.

Note: If the color is violet or blue-violet, it is necessary to prolong the immersion time, eventually add Tridur DB A 2x in 2.5 ml/l steps.

8 Guidelines for the Storage of Products of Tridur DB

Tridur DB products should be stored at normal indoor conditions (5 – 30 °C).

Do not store Tridur DB products for extended period at temperatures above 40 °C or below 0 °C. This can lead to a shorter shelf life or to freezing of the product.

9 General Safety Precautions

Avoid direct contact with this material. Do not inhale associated mist or vapors. Wash contaminated clothing before reuse. Refer to Safety Data Sheet (SDS) for specific precautions before handling this material and for first aid recommendations. As applicable, keep exposure below the limits recommended by the appropriate regional regulatory agencies.

For further information regarding safe handling of the product please refer to the corresponding SDS. The SDS is provided as part of the ordering process. If you don't have a copy of the SDS for a product then it can be obtained, on request, from the appropriate regional Atotech office.

10 Material No. for Make-Up and Maintenance Products

PRODUCT	MATERIAL NO.
TRIDUR DB A 2x	1689109
TRIDUR DB B	1685817
TRIDUR DB C	1687233
TRIDUR DB B2	1690717

11 Document History

Current revision status	Date	Change against last version:
01	27. Apr.2015	New
02	30. Jan.2017	Change of make-up sequence
03	23. Oct.2017	Cr(III) Content Tridur DB A changed
04	22. Oct.2018	New Tridur DB A 2x, changings in Equipment and Maintenance
05	30. Jan.2020	Additive changed
06	20. Apr.2021	IMDS Number Co-Free changed
07	25. Jan.2022	Tridur DB A deleted from SAP Materialtable

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