Henkel

Surface Technologies

Technical Process Bulletin

Alodine® 4830/4831

Passivation for Aluminium
- Liquid, Chrome-Free 2 Component Product -

Properties and Application Fields:

Alodine® 4830 and Alodine® 4831 are fluid components for a passivation treatment. Mixed with water they produce colourless conversion layers on aluminium and its alloys in immersion and spray application. These provide a corrosion resistance as well as very good adhesion properties for subsequent painting.

Process Components:

Alodine® 4830
Alodine® 4831

Make-Up:

For each 1.000 l of bath add

	Immersion	**Spray**
Alodine® 4830	5,0 - 7,5 l	5,0 - 7,5 l
Alodine® 4831	12,5 l	9,0 - 12,5 l

to the DI-water whilst stirring.

Summary of the Process Parameters:

Changes in the following process parameters may be necessary and depend on local conditions.

Control Points:

	Immersion	**Spray**
Free Acid	9 - 11 ml	7 - 11 ml
Temperature	15 - 30 °C	15 - 30 °C
Time	30 - 60 s	10 - 30 s

	Spray Pressure	0.5 - 1.2 bar

Process Sequence:

1. Clean/Etch
2. Rinse
3. Deoxidizing
4. Rinse
5. Rinse with DI-Water (< 100 µS/cm)
6. Passivation (with Alodine® 4830/4831)
7. Dry*

Max. temperature of the metal: 100 °C

* In some cases an additional Fog Stage or air nozzles have to be installed prior to drying.

Bath Maintenance:

The Alodine® 4830/4831-bath is controlled by determination of the free acidity. Iron ions in the bath may interfere with coating quality. Maximum iron content: 10 ppm.

Free Acid Titration:

a) Give 100 ml of Alodine® 4830/31 into an Erlenmeyer flask.
b) Add approximately 5 drops of bromophenolblue.
c) Fill the burette to the zero mark with 0.1 N sodium hydroxide.
d) While swirling the sample, slowly add 0.1 N sodium hydroxide solution from the burette until the yellow colour changes to blue-purple.
e) The recorded milliliters of 0.1 N sodium hydroxide should have a value of 9 - 11 ml for immersion application and 7 - 11 ml for spray application.

Replenishment of the Bath:

For each 1 ml below the titration range and for every 1000 l of bath add:

Alodine® 4830	0,2 - 1,2 l
Alodine® 4831	1,2 l

General Recommendations:

The containers for the Alodine® 4830 in the delivered concentration should be made out of Hard PVC or stainless steel (1.4571). For Alodine® 4831 fluoride resistent plastic like hard PVC or PP should be chosen.

The bath containers for the Alodine® 4830/4831-bath can be made of hard PVC (without softening agents) or stainless steel 1.4571. A different possibility would be the use of a steel container which has been lined with a fluoride resistant plastic.

Fastening material and baskets should be made of aluminium, stainless steel (1.4571) or plastic (hard PVC).

The spraying systems, pumps and heating facilities should be made of stainless steel (1.4571).

Alodine® 4830/4831 baths must be detoxificated and neutralized before adding them to the normal waste water.

Caution:

Alodine® 4830 contains polyacrylic acid!
Alodine® 4831 contains fluorozirconic acid!

Watch safety precautions! Shield eyes with tightly fitting safety glasses, wear rubber gloves and chemical resistant safety clothes.
Avoid contact with skin! Do not inhale vapours!
Read the safety information on the product label!

Equipment and Reagents for the Free Acid Titration:

100 ml graduated cylinder (2)
300 ml wide-necked Erlenmeyer flask (2)
25 ml burette
deionized water
0.1 % alcoholic bromophenol blue solution
0.1 N sodium hydroxide

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