



# Surface Technologies

Translation of the German Technical Process Bulletin

## Alodine® 1200 S Two-component immersion process

### Yellow chromating of aluminium

**Fields of application:** Alodine® 1200 S is a two package chemical used to produce a protective coating on aluminum which ranges in colour from light iridescent golden to tan. The process is operated at room temperature. The coating produced minimizes corrosion and provides an improved bond for paint.

Alodine® 1200 S is used in an immersion, spray and brush-on application. This Technical Product Bulletin is valid for an immersion process.

Alodine® 1200 S is divided in two components:

Alodine® 1200 A - liquid, chromic acid containing component  
Alodine® 1200 SB - powder, fluoride containing accelerator

**Coating bath make-up:** For each 1000 l of bath, add to the water with stirring or circulating by the pump:

Alodine® 1200 A	13,3 or 10,6 l	
	Alodine® 1200 SB	3,5 kg

**Operating conditions:** Points Cr(VI) 12 - 13

pH-value	1.8 - 2.0
Temperature	20 - 40 ° C
Time	0,5 - 5 min.

Do not premix the two components before adding to the bath. Add each component seperately to the bath solution!

**Process sequence:**

- Operation No. 1 - Clean
- Operation No. 2 - Rinse
- Operation No. 3 - Deoxidize
- Operation No. 4 - Rinse
- Operation No. 5 - Coat with Alodine® 1200 S
- Operation No. 6 - Rinse
- Operation No. 7 - Rinse with deionized water
- Operation No. 8 - Dry

The work, after processing and drying, is ready for use either painted or unpainted.

**Maintenance of the bath:** The Alodine® 1200 S coating chemical bath is controlled in the plant by a titration of the Cr(VI)-points and a pH check.

**Cr(VI)-points:**

Titration:

1. Pipette 10 ml sample of the Alodine® 1200S coating chemical bath into a flask and dilute with 50 ml distilled water.
2. Add 20 ml of 25 % H<sub>2</sub>SO<sub>4</sub> and 2 - 3 g KJ.
3. Titrate against 0.1 N sodium thiosulphate solution until the colour changes from brown to yellow.
4. Add several ml of soluble starch solution to the sample and continue the titration until the blue-black colour disappears.
5. Record the number of ml of 0.1 N sodium thiosulphate solution used as Cr(VI)-points.

Replenishment:

Add 1,1 kg or 0,8 l of Alodine® 1200 A and 0,28 kg of Alodine® 1200 SB per 1000 l of bath for each Cr(VI)-point lacking.

The bath should be kept within 12 and 13 Cr(VI)-points.

**pH-Determination:** A pH determination should be made each time the Alodine® 1200 S coating chemical bath has been replenished.

The optimum pH lies between 1.8 and 2.0.

NOTE: The pH of the Alodine® 1200 S is adjusted with diluted caustic solution and nitric acid, respectively.

**Remarks:** The tank material containing Alodine® 1200 S should be made out of rigid PVC (free of plasticisers) or austenic steel (type 1.4571).

Hooks and basket will have to be made out aluminum, rigid PVC (free of plasticisers) or austenic steel.

Bathes of Alodine® 1200 S as well as its rinsing bathes are not to be discharged into the public sewage system without prior detoxification and neutralization.

**Caution!**

Alodine® 1200 A contains chromium trioxide  
Alodine® 1200 SB contains fluorides

- Wear
- Eye goggles
- Rubber gloves
- Acid resistant wear
- Avoid contact with skin
- Provide air circulation

**Equipment and chemicals  
for the analysis:**

Erlenmeyer flask, 300 ml  
Graduated cylinder, 50 ml  
Buret, 25 ml  
DI-water  
Sulphuric acid, 25 %, pur  
Potassium iodide  
Starch solution (stabilized), 1 %  
Sodium thiosulphat solution, 0.1 N  
pH-meter

Pipet, 10 ml

**The expiry date of the product is given on the packaging labels.**

This information is based on our current level of knowledge. It is given in good faith but it is not intended to guarantee any particular properties. The users must satisfy themselves that there are no circumstances requiring additional information or precautions or the verification of details given herein.

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