Bernd Olschner GmbH

Ultraschallreinigungschemie – Verfahrenstechnik

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GUIDELINE

Passivation with Citric Acid according to ASTM 967 standard and subsequent testing methods

When performing passivation in accordance with ASTM A967, particular attention must be paid to the citric acid concentration and the solution temperature. The required passivation time is determined by the operating temperature.

Citric Acid Concentration Requirement:	**4% - 10% (w/w)**	
Required Passivation Time as a Function of Temperature	**4 min**	**60°C – 71°C**
	10 min	**49°C – 60°C**
	20 min	**21°C – 49°C**

The product specifications for Olschner passivation media provide detailed information on the correct dilution ratios required to achieve passivation in accordance with ASTM 967.

Verification of Passivation

To verify the effectiveness of the passivation treatment, a corrosion test may be performed afterward.

Internal Test Method

For internal quality assurance purposes, the passivated parts may be immersed in a **0,9 wt% sodium chloride solution** (equivalent to the salinity of human blood) for **24 hours.**

After the immersion period, the parts should be visually inspected for signs of corrosion, rust formation or surface discoloration.

Test Methods Permitted by ASTM Standards

→ Water Immersion Test	Representative parts from the production batch are immersed in distilled water for 1 hour, followed by air drying for 1 hour. This cycle is repeated a total of 12 times. After completion of the test, the parts are examined for rust, staining and other indications of corrosion.

→ High Humidity Test	In this test representative parts from the production batch are first cleaned after passivation using acetone or methyl alcohol (by immersion or wiping) and subsequently dried in an inert atmosphere or a drying chamber. The prepared parts are then exposed in a humidity chamber to a relative humidity of 97% ± 3% at a temperature of 35 – 40°C for a minimum duration of 24 hours. Following exposure, the parts are inspected for rust formation, staining and other signs of corrosion.
→ Salt Spray Test	Representative parts from the production batch are subjected to a salt spray (salt fog) test in accordance with Practice B117. The specimens are exposed to a 5 wt% sodium chloride solution in a salt spray chamber for a minimum of 2 hours after which they are evaluated for evidence or corrosion, rust or surface staining.

Additional ASTM Test Methods

In addition to the test methods described above, ASTM specifies three further passivation verification methods that are primarily intended for specific stainless steel alloys and for large or difficult to handle components.

Fur further information regarding these test methods and their applicability, please contact us.