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riag Cr 320 Tenside

Wetting agent for bright (Cr^{6+}) and hard chromium processes

The product **riag Cr 320 Tenside** is mainly used in hexavalent bright- or hard chromium processes. The wetting agent is liquid and therefore easy to handle.

Properties

- free of PFOS and PFOA
- good chemical stability in chromium electrolytes
- significant reduction of aerosol formation and spray mist
- reduces the electrolytes surface tension
- Can also be used in many pickling (general and ABS-picklings for plating on plastics) or electropolishing processes.

riag Cr Wetting Agent for bright and hard chromium processes

Mode of operation: There will be a foam formation starting immediately after the chromium deposition is started. The foam layer should be 3 – 4 cm thick and prevents the formation of aerosol and spray mist. Together with an exhaust system, the use of the wetting agent is a second, efficient method to avoid contamination with chromic aerosols (chromic aerosols destroy nasal mucus layers in human bodies and may cause cancers).

Dosage: 1.5 – 5 mL/L riag Cr Wetting Agent. The needed dosage depends on plant technologies. A concentration of 1.5 mL/L **riag Cr 320 Tenside** is the lower limit concentration. The usage of too low or too high starting concentrations may cause higher additions of **riag Cr 320 Tenside** in practice.

Additive consumption The additive is consumed during electrolytic reactions as well as drag-out losses and other side-effects and the use per 10 kAh can therefore vary. Other side-effects are a bundle of effects that may increase the additive consumption. Examples are impurities, especially additional metals like iron as well as suspended particles, and subsidiary oxidative stress from the chromium species itself as a long-term effect (exposure time).

riag Cr 320 Tenside 0.2 – 1.0 L/10 kAh

Maintenance: The consumed **riag Cr 320 Tenside** should be added regularly. If the consumption is high enough, it is recommended to add the **riag Cr 320 Tenside** once a shift.
Dilute the **riag Cr 320 Tenside** 1:5 up to 1:10 with deionized water. Add the diluted solution to the electrolyte only. If the rinsing water is recycled, the deionized water can be replaced with the rinsing water in the dilution step (Be sure that the rinsing water source is deionized water only). It is recommended to spread all additions over a wide area of the electrolyte.

Conversion process

In principle, the (floating) conversion to **riag Cr 320 Tenside** is possible. Aged electrolytes may contain nuisance-causing substances, e.g. additional metals. To avoid any inconvenience, a floating conversion check is recommended. This floating conversion check is done at the riag laboratory. During the conversion process, the foam formation may appear in a different manner. It is possible that the foam layer is thinner than usual. As long as this foam layer is closed, the wetting agent combination significantly reduces aerosol formation. This condition is a temporary effect. If the old wetting agent is used up, the conversion step is finished and the foam formation shows a stable normal state.

During the conversion process, it is recommended to observe the foam surface state. If the closed foam layer begins to crack, add **riag Cr 320 Tenside** in steps of 0.5 mL/L. Use a dilution of 1:5 up to 1:10 with water like mentioned above (see chapter Maintenance). Only add a part of the diluted solution. It is only necessary to close the foam layer again. The addition of more **riag Cr 320 Tenside** as needed is counterproductive in respect to increasing consumption rates.

Even if the **riag Cr 320 Tenside** can be used universally and is compatible with many other products, the conversion from these products should be checked separately in laboratory scale before its use in production.

In rare cases, it is possible that a floating conversion is not directly possible. Then, it may be necessary to degrade the old wetting agent before the **riag Cr 320 Tenside** could be added. Additionally, after degradation of the old wetting agent, it may be necessary to clean the tank and anodes.

Waste water treatment / Environmental protection

Although the product **riag Cr 320 Tenside** will decrease the drag out, concentrates as well as their rinsing waters contain chromium (VI) and are extremely dangerous for waste water treatment plants. The waste water needs to be prepared according legal regulations before getting in the canalisation.

Safety arrangements

We recommend wearing safety glasses, gloves and protective clothing during working with chromic acid. For further information please consult the safety data sheets. Chemicals must not be stored under 10 °C.

Liability

This instruction manual was compiled with reference to the state of the art and all current standards, and is based on the long-term knowledge and experience of riag. However, riag cannot monitor compliance with this instruction manual and the methods described herein at the customer/end-user's premises. Work carried out with riag products must be adapted accordingly to meet local conditions. In particular, riag cannot accept liability for damage, loss or cost incurred due to a failure to adhere to this instruction manual, improper application of the methods, unauthorised technical modifications, insufficient maintenance or the absence of maintenance in respect of the requisite technical hardware or equipment, or in the event of use by unqualified personnel. riag is not liable for damage or loss caused by riag or its employees except where intention or gross negligence can be proved. riag furthermore reserves the right to make changes in relation to products, methods and the instruction manual without prior notice.

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