Product information Alfisatin 339/4

Alfisatin 339/4

is an extremely low-foaming long-term pickling additive for a high throughput of goods, achieving improved draining performance for special applications. This product functions best at an aluminium content of around 140 g/l or higher. As a result of the optimised draining characteristics, even a higher aluminium content in the bath is possible. Special additives also facilitate preservation when storing long-term pickling bath solutions which have to be stored for waste water treatment.

Alfisatin 339/4 is particularly suitable for use in spraying systems, ensuring consistently uniform, fine matt E6 surfaces with higher aluminium concentrations. Shadows caused by wires, stains resulting from transportation between the process steps, stone or sludge do not occur if the process is operated correctly. Ridge deposits are concealed to a large extent.

Thanks to its design, **Alfisatin 339/4** is distinguished by good visual levelling with minor abrasion. Special additives ensure that the foam which usually develops with greater product loads is reduced to an absolute minimum.

Characteristic data

Density	approx. 1.25 g/ml
Duration of treatment	preferably 10 - 20 minutes, depending on temperature, concentration and the desired degree of satinising
Temperature	preferably 55 - 65°C
Desired values	Alfisatin 339/4: at least 22 points sodium hydroxide: 50 – 80 g/l aluminium content: at least 140 g/l
Quality control	see paragraph Maintaining concentration
Form of delivery	liquid/ 35 kg plastic canister and 1200 kg container (IBC)

The effectiveness of this product is strongly influenced by the material and the surface quality of the parts. In individual cases, the optimal operating parameters may therefore lie outside the indicated standard ranges.

Safety precautions

Please observe the usual safety precautions when handling chemical substances. The classifications according to the statutory regulations for transport, storage and handling of the product as well as further product-specific information are included in the safety data sheet. Bath solutions, rinsing water and concentrates must be treated according to the relevant regulations before being discharged into the sewage system.

Tank material

Steel tanks are suitable with this product. When selecting tanks, please ensure that they can be heated. Removal by suction is not necessary for pickling substances that have been in use for some time. Cooling is recommended if the baths are in constant use.

Procedure

Before pickling, the products should undergo pretreatment using a suitable low-foaming Alficlean cleaning system. After pickling, a brief follow-up treatment in an E0 pickling bath prior to intensive rinsing is beneficial in many cases. The optimum effect is achieved with a two-stage rinsing process for which the first rinsing bath should be a standing rinse (or a highly contaminated flow rinse bath). Thorough rinsing is essential as otherwise precipitations of aluminium hydroxide may result which can lead to clogging on hollow sections, or even to inclusions of pickling agent which will later destroy the section. Particular attention should also be given to the subsequent deoxidation pickling process. Optimum results can be achieved by adding Alfideox 75 or 79 to the individual acid bath. Inadequate deoxidation will leave deposits on the surface, most of which will be apparent as stains on the finished product. The optimal deoxidation system for the specific application is best determined by way of advance testing. Anodising, dyeing and sealing are carried out subsequent to deoxidation.

Maintaining concentration

The concentration of Alfisatin 339/4, sodium hydroxide and aluminium should be determined by analysis and maintained at a constant level. The Alfisatin and sodium hydroxide concentrations must also be adapted to the individual aluminium content.

The concentration of Alfisatin 339/4 should be kept within the prescribed range so as to reliably prevent all potential process disturbances. Higher values will improve the visual levelling and further stabilise the bath solution when aluminium concentrations are higher. Consumption depends on the temperature of the pickling solution and the pickling times.

The sodium hydroxide (caustic soda) concentration should be at least 50 g/l. The consumption depends on the pickling time and the aluminium content. To achieve an attractive matt finish, the aluminium content should exceed 140 g/l. Higher aluminium concentrations will intensify the matt finish, while at the same time the viscosity of the pickling solution will increase If Alisatin 339/4 is dosed automatically, the product can also be added in an individually determined fixed ratio to the sodium hydroxide consumption.

Any pickling mist (spraying losses), which may occur in some cases if the aluminium concentration is low (below 140 g/l Al), can be reduced by adding Wetting agent A 35/1; or an alternative Alfisatin product can be selected instead.

Traces of zinc may cause coarse surface granulation. In such cases, a sodium sulphide precipitation (around 0.1–0.5 g/l) with an appropriate reaction time is recommended.

Preparation of the sample

The warm pickling solution is first filtered (use a large funnel with folded filter; cover with a watch glass to keep the sample warm for as long as possible). The clear filtrate is then collected in a beaker glass. If the pickling solution is not clear following this filtering process, the still cloudy liquid is filtered again (or more often if necessary). Deep filtering achieves a better separation effect.

Maintaining concentration (continuation)

Dilution 1

Exactly 50 ml of the filtrate, cooled down to ambient temperature, is transferred into a 500 ml volumetric flask using a pipette. (If this filtrate is too viscous due to a high aluminium concentration, please contact our technical service.) The volumetric flask is then filled to the mark with deionized water and the resulting dilution homogenised by gently shaking the flask.

Dilution 2

1.0 g zinc sulfate heptahydrate is weighed into a 250 ml beaker glass (high) and 3 pellets of sodium hydroxide (approx. 1 g) are added. Then 200 ml of dilution 1 are added from a measuring cylinder. This preparation is covered with a watch-glass and heated to 70°C on a heating plate with a magnetic stirrer. This temperature is maintained for 2 minutes, then the solution is cooled down to ambient temperature in the water bath. During the entire period of sample preparation, the beaker glass remains covered.

After the preparation has cooled down to ambient temperature, it is filtered through a folded filter.

Determination of concentration: 10 ml*** of the filtrated and cooled down (20°C) dilution 2 are pipetted with a volumetric pipette into a 300 ml Erlenmeyer flask with stirring magnet. 25 ml deionized water are added from a measuring cylinder. Then 50.0 ml of 0.1 N potassium permanganate solution are added from a brown glass burette or volumetric pipette. Then this preparation is heated to 70°C while stirring. After this temperature has been achieved, the preparation is maintained in a range of 70-75°C for 5 minutes. Higher temperatures should be avoided.

Then the solution is cooled down quickly to 40° C in the water bath and 10 ml of sulfuric acid 96% are added cautiously with a measuring cylinder while swirling. The solution is again heated to 70° C, this temperature is maintained for 1 minute and then 50.0 ml of 0.1 N oxalic acid solution are added from a burette or a volumetric pipette. The preparation becomes colourless, is again heated to 70-75°C and then hot titration is immediately performed against 0.1 N potassium permanganate solution until the colour remains pink (waiting time: 15 sec.).

Spent ml 0.1 N potassium permanganate solution = points Alfisatin 339/4

***Additional information for determination of concentration!

If more than 30 ml of 0.1 N potassium permanganate solution are necessary for titration then **5 ml instead of 10 ml** filtrated and cooled down (20°C) dilution 2 are pipetted. In that case calculation is as follows:

Spent ml 0.1 N potassium permanganate solution **x 2** = points Alfisatin 339/4

Maintaining concentration (continuation)

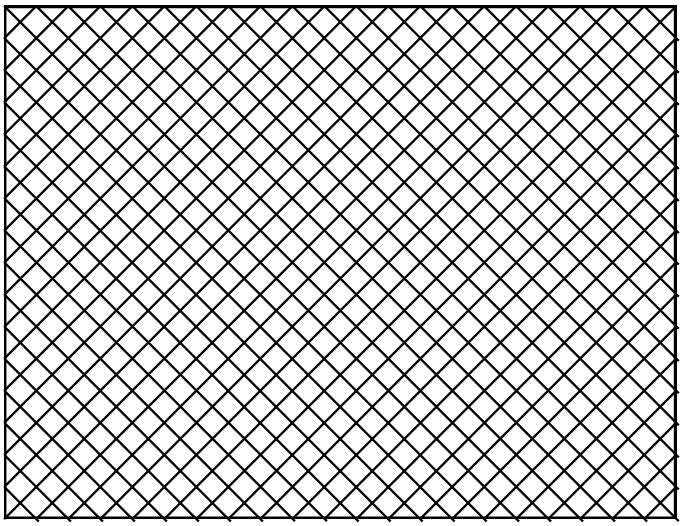
Sodium hydroxide concentration

100 ml of dilution 1 is pipetted into a 300 ml Erlenmeyer flask using a volumetric pipette. Titration is then carried out by means of 1 N sulphuric acid until the liquid becomes so cloudy that the grid pattern is no longer clearly visible.

Spent ml = N Calculation: N x 4.5 = g/l NaOH

Aluminium content: 20 ml of dilution 1 is pipetted into a 300 ml Erlenmeyer flask using a volumetric pipette and approx. 50 ml of deionized water added. 25 ml of potassium fluoride solution (33%) from a volumetric flask is then added as well as a few drops of phenolphthalein solution from a dropper bottle. Titration is performed using 1 N of sulphuric acid until the solution turns colourless.

Spent ml = A Calculation: (5A - N) x 0.73 = g/l aluminium



Alufinish laboratory chemicals

Zinc sulfate, heptahydrate (item no. 5023)

Sodium hydroxide (item no. 5043)

Potassium permanganate solution 0.1 N (item no. 5004)

Sulphuric acid, 96% (item no. 5027)

Oxalic acid solution 0.1 N (item no. 5003)

Sulphuric acid 1 N (item no. 5002)

Potassium fluoride solution, 33% (item no. 5000)

Phenolphthalein solution (item no. 5013)

We will be glad to give you advice in this area and to send you relevant informations.