Product Bulletin
Product Name: Aquamill OXR-LF
Product Code: 2101016
Revision Date: May 16, 2024

Aquamill OXR-LF

Chemical Composition for the Surface Refinement of Steel Substrates

Aquamill™ OXR-LF is a proprietary blend of oxalic acid and inhibitors. It also contains a wetting agent for the uniform initiation of the chemical reaction that leads to surface refinement.

Aquamill™ OXR-LF is normally used in open bowl flow-through applications. It may, however, also be used in closed bowl applications.

The use of Aquamill™ OXR-LF will result in the creation of an isotopic surface.

Aquamill™ OXR-LF may be used as a primary surface refinement process or it may be used to further refine the surface of steel substrates after the use of more aggressive accelerated mass finishing products such as Hubbard-Hall's Aquamill® XLS C2.

Mixing

Aquamill™ OXR-LF is mixed with water at a concentration of from 2 oz. to 4 oz. per gallon. Four ounces per gallon is the concentration typically used for most applications. It is beneficial to use warm water (90-110F) when mixing the Aquamill™ OXR-LF to facilitate the dissolving of the salt.

Processing

Aquamill™ OXR-LF is normally used in open bowl flow-through applications. AQUAMILL™ OXR-LF is added to the vibratory mill at a rate of one gallon per cubic foot of bowl capacity per hour of cut time. A vibratory bowl containing ten cubic feet of work and media would require a flow rate of ten gallons of 3 oz/gallon of AQUAMILL™ OXR-LF per hour.

The time required to achieve the desired amount of surface refinement is primarily determined by the surface finish of the parts to be processed. For instance, a part with a 30 to 50 RA finish would normally require a cycle time of 60 to 120 minutes water using a twenty to thirty bond plastic or ceramic media to achieve a finish with an RA of 10-15.

It must be pointed out that these are general guidelines and the actual process parameters employed to achieve a desired surface finish are ultimately determined by the alloy, heat treat, and shape of the parts to be processed.

Upon completion of the cut portion of the cycle, a burnishing compound can be added directly to the bowl without the need of the intervening rinse. A burnishing compound such as Hubbard-Hall's MetalGuard® 800-D used at 2% by volume with a flow rate of five to ten gallons per cubic foot per hour will effectively remove the black phase produced by the Aquamill™ OXR-LF in 30 to 60 minutes. The residual film left behind by the MetalGuard® 800-D will protect the parts from corrosion for up to 48 hours while in process.

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Aquamill™ OXR-LF Test Kit Procedure:

1. Fill testing bottle ½ full with water.
2. Add 1 ml of Aquamill™ OXR-LF solution, using the syringe.
3. Add 5-10 drops phenolphthalein indicator.
4. Add N-72 solution drop-wise while mixing the solution to a pink end-point.

Oz/gal. Aquamill™ OXR-LF = number of drops of N-72 solution x 0.31

Precautions

The three ounces per gallon solution of Aquamill™ OXR-LF will have a pH of approximately 2 and may be irritating to the skin. It is recommended that the operator wear gloves when removing parts from the vibratory bowl for in-process inspection.

Oxalic acid is toxic by injection. It should not be ingested. Employ safe handling and general chemical hygiene protocols required for any toxic chemical when handling and using the Aquamill™OXR-LF and its solutions. Employees using and coming in contact with Aquamill™ OXR-LF should read and thoroughly understand the Material Safety Data Sheet prior to using or handling the Aquamill™ OXR-LF or its solutions.

WARRANTY: THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.

Our People. Your Problem Solvers.

For more information on this process,
please call us at 203.756.5521 or email: techservice@hubbardhall.com

Hubbard-Hall holds certifications for **ISO 9001:2015**, Responsible Distribution, as accredited by the **ACD** (Alliance for Chemical Distributors) and as a **Women-Owned Small Business**, as well as maintaining an association with **Omni-Chem[136]**.