

FORMULATION

Automatic Dishwasher Gel

Overview

- Automatic dishwasher gel for a spot-free shine
- Effective at controlling scale in hard water conditions
- Biodegradable and free from environmentally persistent ingredients such as polyacrylates
- Free-from phosphates, phosphonates, and chlorine

Composition

| Ingredient | Trade Name | Function | % w/w |
|---|-----------------------------------|--|------------|
| Water | | | QS to 100 |
| Sodium Bicarbonate | | Buffering Agent/Mineral Based Cleaner | 15.0 |
| Aminocarboxylate (47%) | Dissolvine GL-47-S (Nouryon) | Biodegradable Chelant | 12.5 |
| Sodium Silicate | | Metal Corrosion Inhibitor | 2.5 |
| Low Foam Surfactant | Plurafac SLF-180 (BASF) | Biodegradable Nonionic Surfactant | 2.0 |
| Citric Acid (50%) | | Buffering Agent (Adjust pH to 8-9) | As Needed |
| Xanthan Gum | | Biodegradable Rheology Modifier | 0.5 - 2.0 |
| Protease | Liquinase Evity 3.5 L (Novonesis) | Facilitates the Breakdown of Protein Stains | 1.0 |
| Amylase | Amplify Prime 100 L (Novonesis) | Facilitates the Breakdown of Starch Stains | 0.75 |
| Sodium Polyaspartate (40% active) | Soltellus 2101L (Lygos) | Biodegradable Multi-functional Polymer <ul style="list-style-type: none"> • Prevents filming by inhibiting the formation of calcium carbonate scale • Mitigates spotting and streaking on glassware | 3.0 |
| Sodium Polyacrylate Copolymer (37%) | Acusol 588 (Dow) | Controls the Formation of Silicate Scale | 0 - 2 |
| Calcium Chloride Dihydrate | | Enzyme Stabilizer | 0.05 |
| Methylisothiazolinone / Benzisothiazolinone | Acticide MBS (Thor) | Biodegradable Preservative | 0.20 |
| Fragrance/Dyes | Adjuvants | Product Aesthetics | |

Directions

1. Add sodium bicarbonate and aminocarboxylate to water with moderate agitation, ensuring homogeneity
2. Add silicate and low foam surfactant into the container with steady mixing
3. Adjust the pH of the mixture between 8.0-9.0 with citric acid
4. Add the Soltellus 2101L and polyacrylate (optional) and continue mixing
5. Slowly blend in the enzymes and any adjuvants (fragrance/dye) and mix thoroughly until the liquid is homogeneous and clump free
6. Very slowly add xanthan gum to achieve the desired final viscosity

Potential Claims

- Sparkling glasses
- Spotless dishes
- Removes stuck-on food
- Excellent performance in hard water
- Free-from polyacrylates
- Skip the prewashing
- Free-from phosphates, phosphonates, and chlorine
- Safe for septic tanks
- Biodegradable

Product Properties

| Parameter | Value |
|--------------------|---------------------------|
| Appearance | Semi-viscous clear liquid |
| pH (1% Solution) | 8.0-9.0 |
| Viscosity | 300-1000 cps |
| Storage Conditions | Store at room temperature |

