

FORMULATION

Premium Automatic Dishwasher Powder Unit Dose

Overview

- Premium automatic dishwasher powder unit dose 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
Sodium Carbonate		Buffering Agent/Mineral Based Cleaner	25.0
Sodium Citrate		Plant-Based Biodegradable Chelant	15.0
Aminocarboxylates	Trilon M Granules SG (BASF) Dissolvine GL-PD-S (Nouryon)	Biodegradable Chelant	10.0
Sodium Percarbonate		Peroxygen Safe Bleach	10.0
Tetraacetythylenediamine (TAED), Sodium Salt		Bleach Activator	3.0
Sodium Disilicate	Britesil H20 (PQ Corp)	Metal Corrosion Inhibitor	2.0
Low Foam Surfactant	Plurafac SLF-180 (BASF)	Biodegradable Nonionic Surfactant	2.0
Protease	Excellenz P2250 (IFF)	Facilitates the Breakdown of Protein Stains	1.0
Amylase	Excellenz S3300 (IFF)	Facilitates the Breakdown of Starch Stains	0.75
Sodium Polyaspartate (92% active)	Soltellus 2101S (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 	3-4
Sodium Polyacrylate Copolymer	Acusol 588G (Dow)	Controls the Formation of Silicate/Phosphonate Scale	0 - 2
Polyvinyl Alcohol		Readily Biodegradable Water-Soluble Film	
Fragrance/Dyes	Adjuvants	Product Aesthetics	
Sodium Sulfate	Sodium Sulfate	Process Aid	QS to 100%

Directions

1. Add sodium carbonate and sulfate with uniform mixing (twin shell blender or ribbon mixer)
2. Spray the surfactant onto the ingredients above while mixing until no clumps are present
3. Add sodium citrate, aminocarboxylate (where applicable), silicate, and phosphonate (where applicable)
4. If the temperature of the powder remains below 95°F (35°C), add sodium percarbonate and the bleach activator, TAED (when present) until homogeneous with no clumps
5. If the powder exceeds 95°F (35°C) during or after blending in sodium percarbonate, stop blending and undertake standard safety procedures to cool and isolate the powder
6. Add the Soltellus 2101S and any optional polyacrylate polymer and continue mixing
7. Slowly blend in the enzymes and any adjuvants (fragrance/dye) and mix thoroughly until the powder is homogeneous and clump free and incorporate into unit dose film

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	Free-flowing granular powder in a PVA sachet
pH (1% Solution)	10.5-11.5
Storage Conditions	Store in a dry, low humidity environment at room temperature

