

Dishwasher Chemistry & Maintenance Blueprint

The Science of Turbidity Sensors, Enzymatic Hydrolysis, and Appliance Longevity

1. Detergent Enzymes vs. Pre-Rinsing Chemistry

Component / Action	Target Soil Type	Mechanism & Failure Point
Subtilisin Protease	Proteins (eggs, cheese, meat gravies)	Cleaves peptide bonds. Requires substrate attachment; washes away in pre-rinse.
Bacterial Amylase	Starches (pasta, oats, rice, potatoes)	Hydrolyzes alpha-bonds into water-soluble sugars. Inactivated if water has no food soil buffer.
Turbidity Sensor (Opto-electric)	Suspended particulate matter	Infrared beam measures light scattering. Clean water prompts machine to abort wash cycle early.
Surfactant Layer	Fats and surface tension	Without food fats to emulsify, aggressive alkaline builders etch fine glassware and cloud glaze.

2. Monthly High-Efficiency Appliance Hygiene Protocol

Maintenance Step	Execution Method	Operational Benefit
1. Filter Degreasing	Twist out cylinder mesh; soak in warm water with dawn dish soap for 10 min.	Restores flow velocity through sump; prevents foul lipid redeposition.
2. Spray Arm Clearance	Inspect jet orifices with a wooden toothpick to remove calcium and seeds.	Equalizes internal water pressure and eliminates blind spraying spots.
3. Citric Acid Cycle	Place 2 tbsp food-grade citric acid powder in main cup; run hottest cycle empty.	Dissolves insoluble calcium carbonate and lime crust on heating coils.