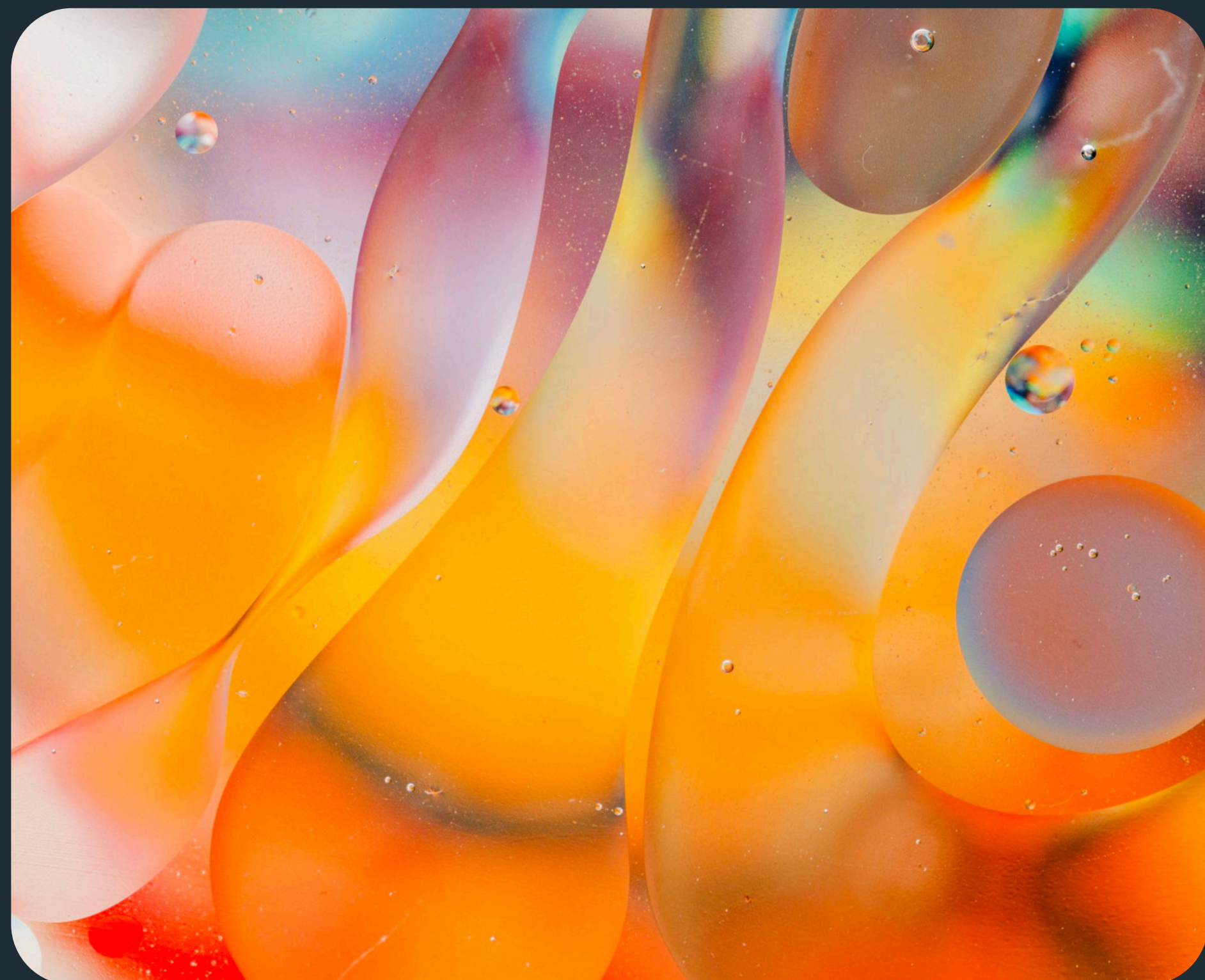


# The Dish



**Issue 5:**  
Journey to Smarter  
Dishwashing

**iff**



SUBSCRIBE FOR MORE

## The freshest news and insights for leaders focused on dishwashing solutions

Register for the latest updates and receive new issues delivered straight to your inbox!

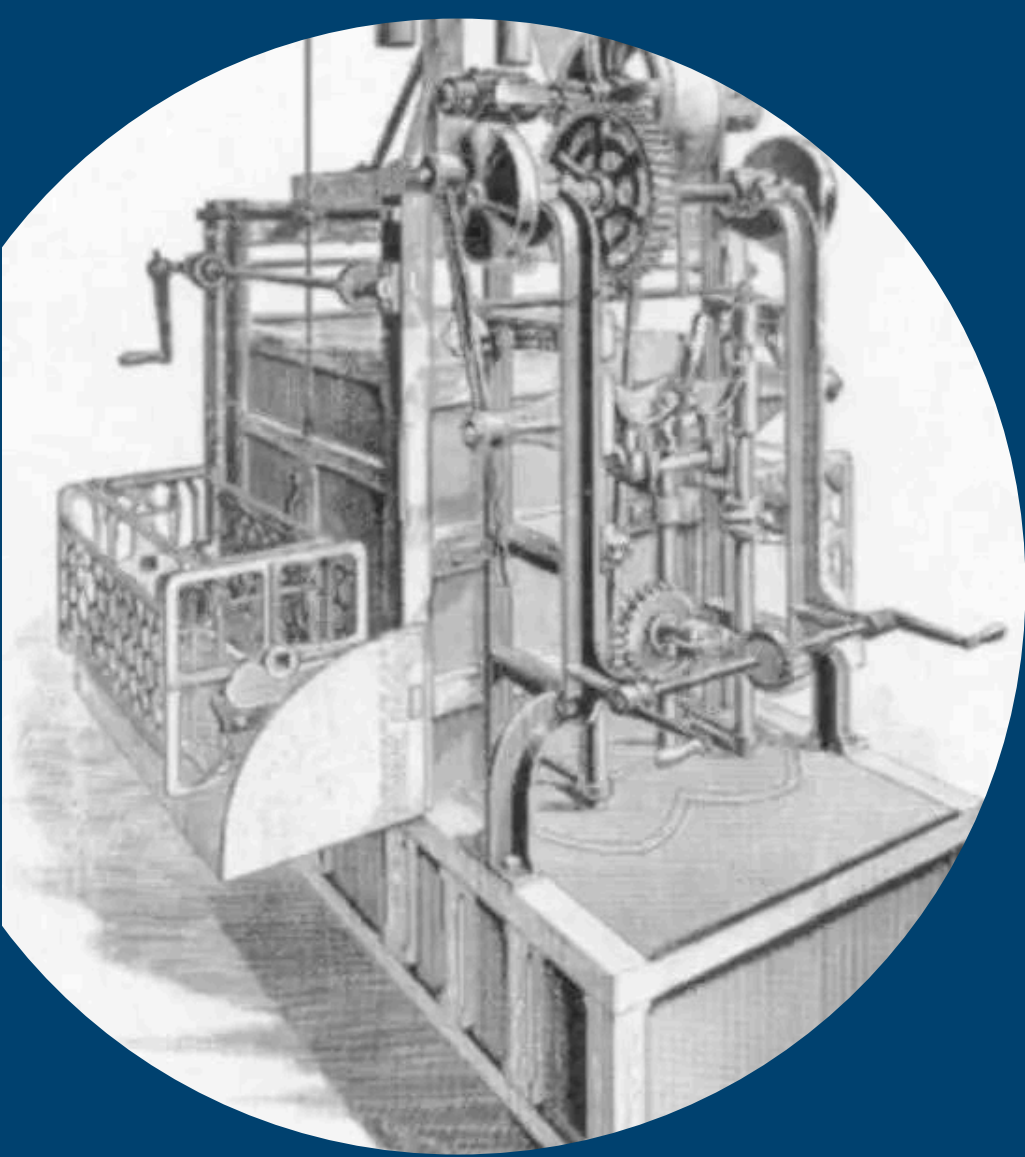
SIGN ME UP! →

## Enabling Innovation With Enzymes

Dishwashing machines don't just keep your plates sparkling, they save you time, money, and energy. These appliances are part of a connected and intelligent future driven by consumer demands to make daily living easier. But innovation at the machine level only delivers its promise when detergent chemistry can keep pace. Enzymes, like those made by IFF, are the quiet enabler of next-generation dishwashing.

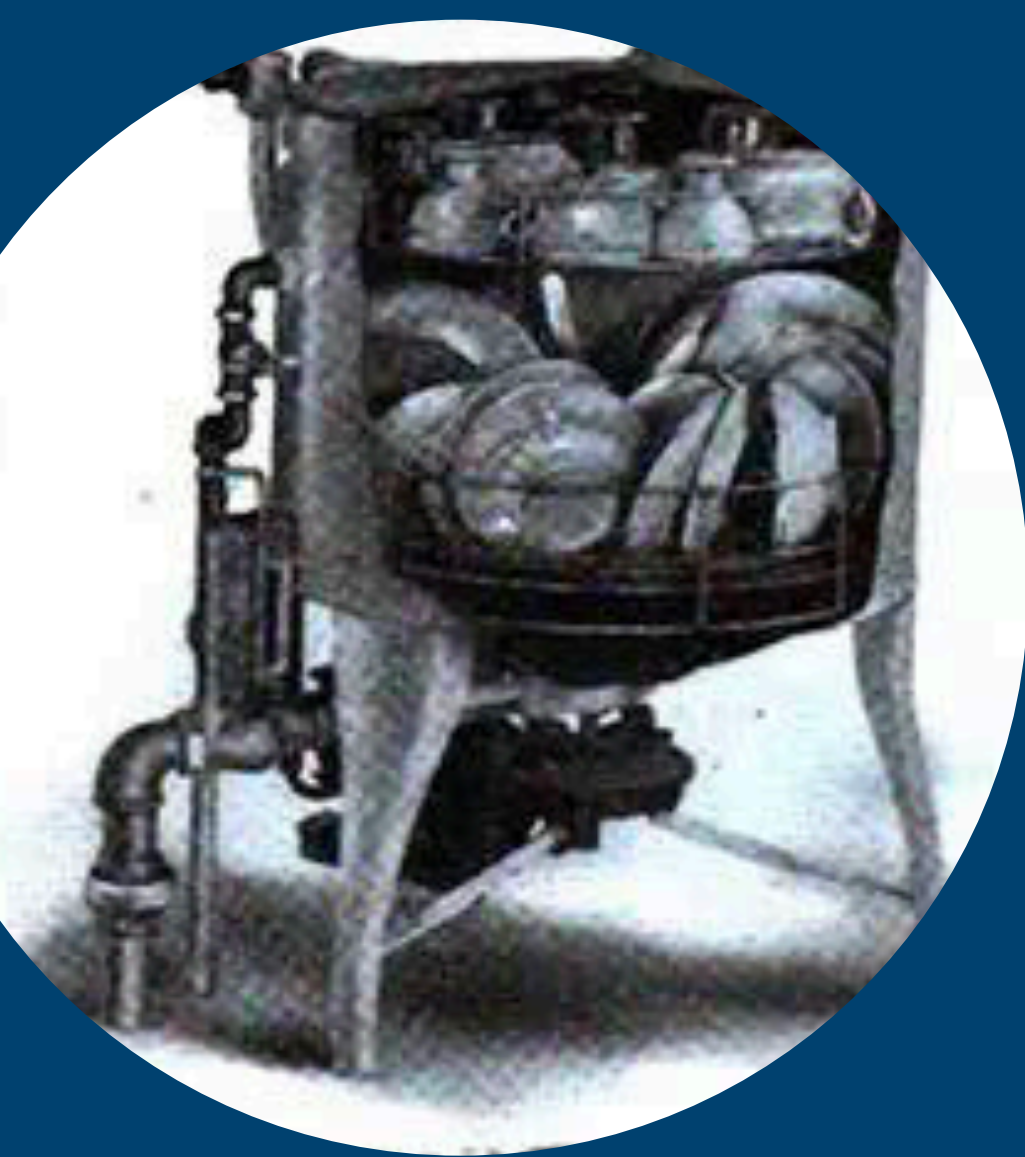
By studying new appliance technology, we create products that allow detergent brands to stay current. But before we move forward, let's take a step back and look at the origins of dishwashing machines.

# Setting the Table for Innovation



**1850**

The first-ever mechanical dishwasher, a hand-cranked contraption made of wood that splashed water on the dishes, is patented by an inventor named Joel Houghton of Ogden, N.Y.



**1913**

The Walker Brothers Company in Syracuse, N.Y., introduces the first electric dishwasher.



**1950s**

More customers start buying automatic dishwashers, with features like automatic soap dispensers and drying capabilities, for their homes.

Every time you load your dishwasher, you can thank Josephine Garis Cochran. In 1886, the Illinois woman with no formal engineering training revolutionized kitchen chores with her newest invention: a machine that used water pressure — instead of harsh scrubbers — to clean dishes. She is known as the mother of the modern dishwasher. Following her death, the KitchenAid® brand acquired her company and used her patents to build and sell its dishwashers.

Since then, automatic dishwashing has come a long way. Each successive innovation has led up to the modern, efficient machines we use today.

**1886**

Josephine Garis Cochran receives the first patent of the modern dishwashing machine, which uses water pressure to clean dishes.

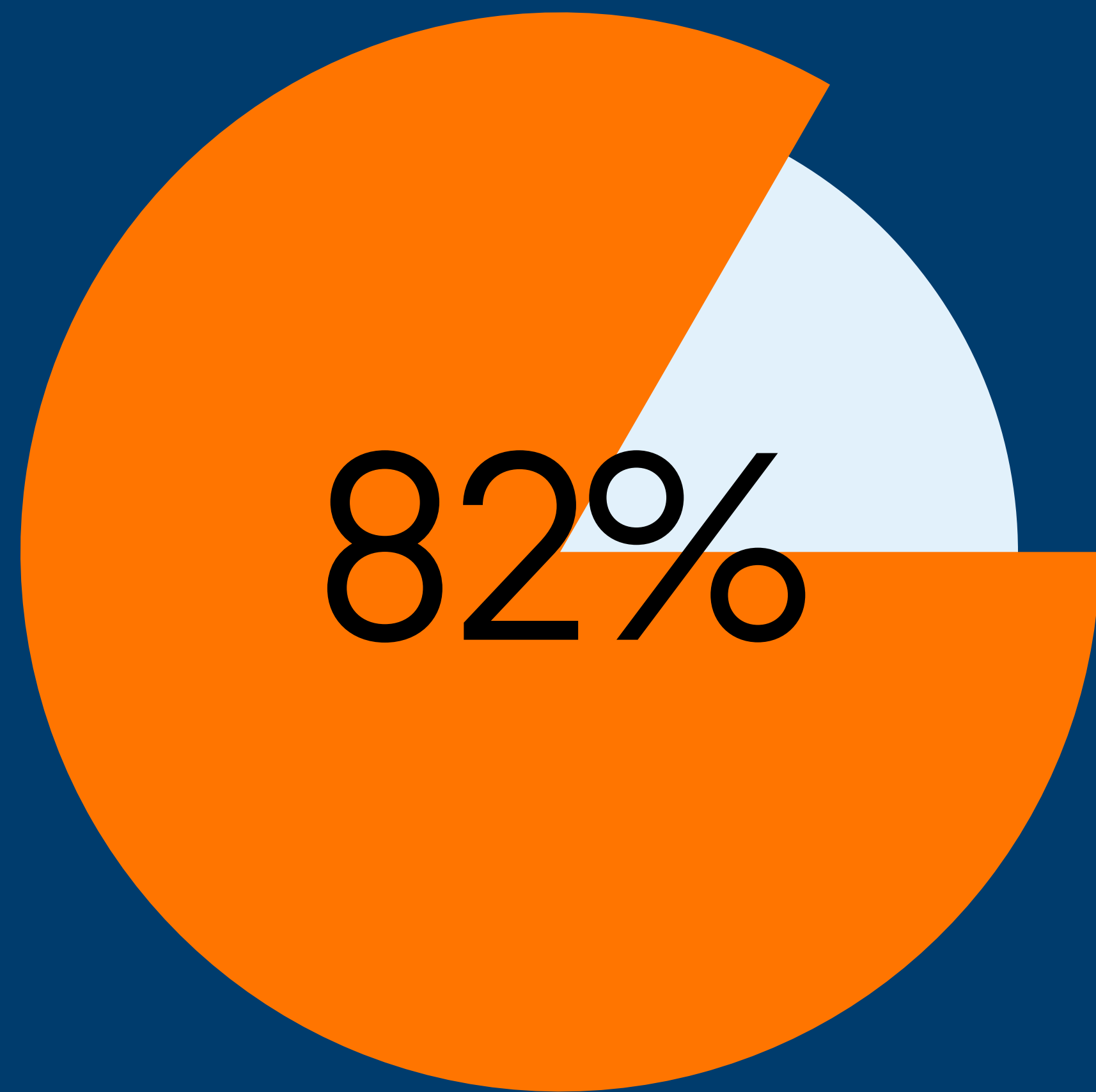


**1929**

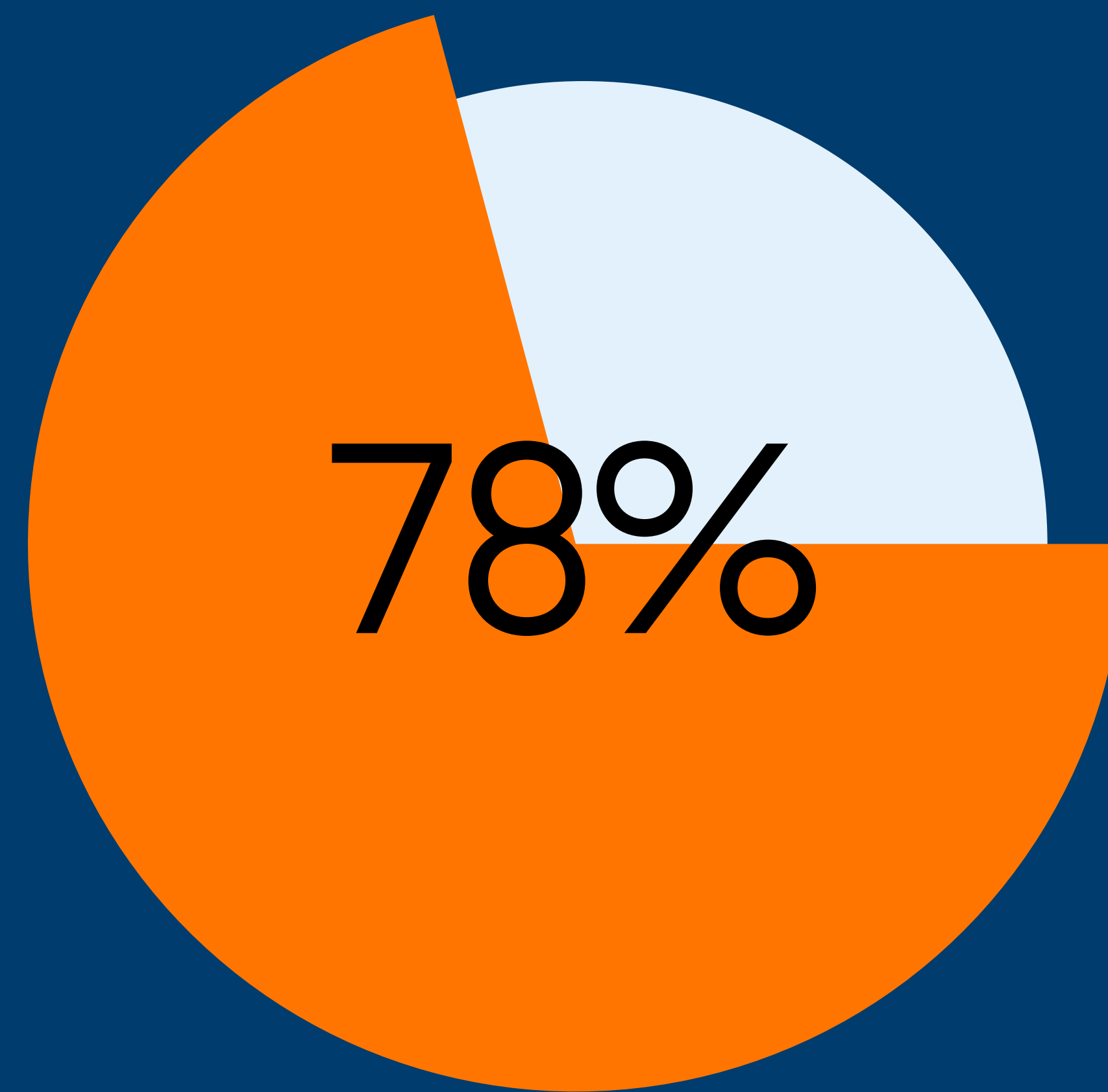
Miele® presents Europe's first-ever electric dishwasher — a round metal tub with a propeller that distributes water.



In 2025...



of Americans own a dishwasher



of German households own a dishwasher

Source: Mintel Dishwashing products U.S. 2021, 2023, 2025  
Destatis - Equipping private households with household and sports equipment in Germany 2023



Imagine what **Josephine Garis Cochran** would think of today's technological innovations like soil and load sensors, smart connectivity, and extra cycles.

## The Next Rinse

Modern dishwashers are undergoing a transformation. Stricter regulatory standards have pushed manufacturers to develop models with lower water and energy consumption.

**Water consumption of European dishwashers has decreased by 50% per cycle over ~20 years.**

Year (approx.)      Average Water Use (L/cycle) (approx.)

2000 <sup>1</sup>	17 L	
2005 <sup>2</sup>	14.5 L	
2010 <sup>3</sup>	12 L	
2018	12.7 L	
2022 <sup>4</sup>	9.5 L	

1. Pre-ecodesign era  
2. Early efficiency improvements  
3. First ecodesign + energy labels  
4. New EU label & eco program focus

Source: APPLiA (Home Appliance Europe) Statistical Report 2023-2024

Technological breakthroughs have allowed appliances to level up, integrating artificial intelligence, sophisticated sensor-driven cycles, and smarter connectivity. Design improvements are also making dishwashers quieter and user-friendly, adapting for non-standard but commonly used items like travel mugs and straws.

Here are some examples of machine innovations and how IFF supports them.

**“Dishwashers have evolved through innovations designed to reflect and adapt to the day-to-day variations that happen in every home.”**

**CHRIS DOSCHER**

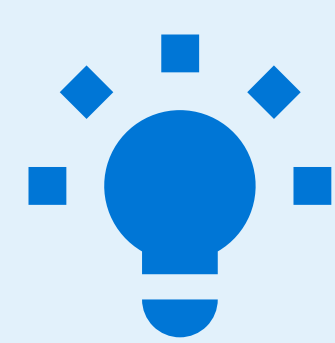
Director of Communications  
Association of Home Appliance  
Manufacturers (AHAM), U.S.

## Convenience

Consumers are embracing simpler lifestyles, which includes spending less time on chores like dishwashing. Machine suppliers are responding with new technologies, specialized wash cycles, and designs to meet those expectations.

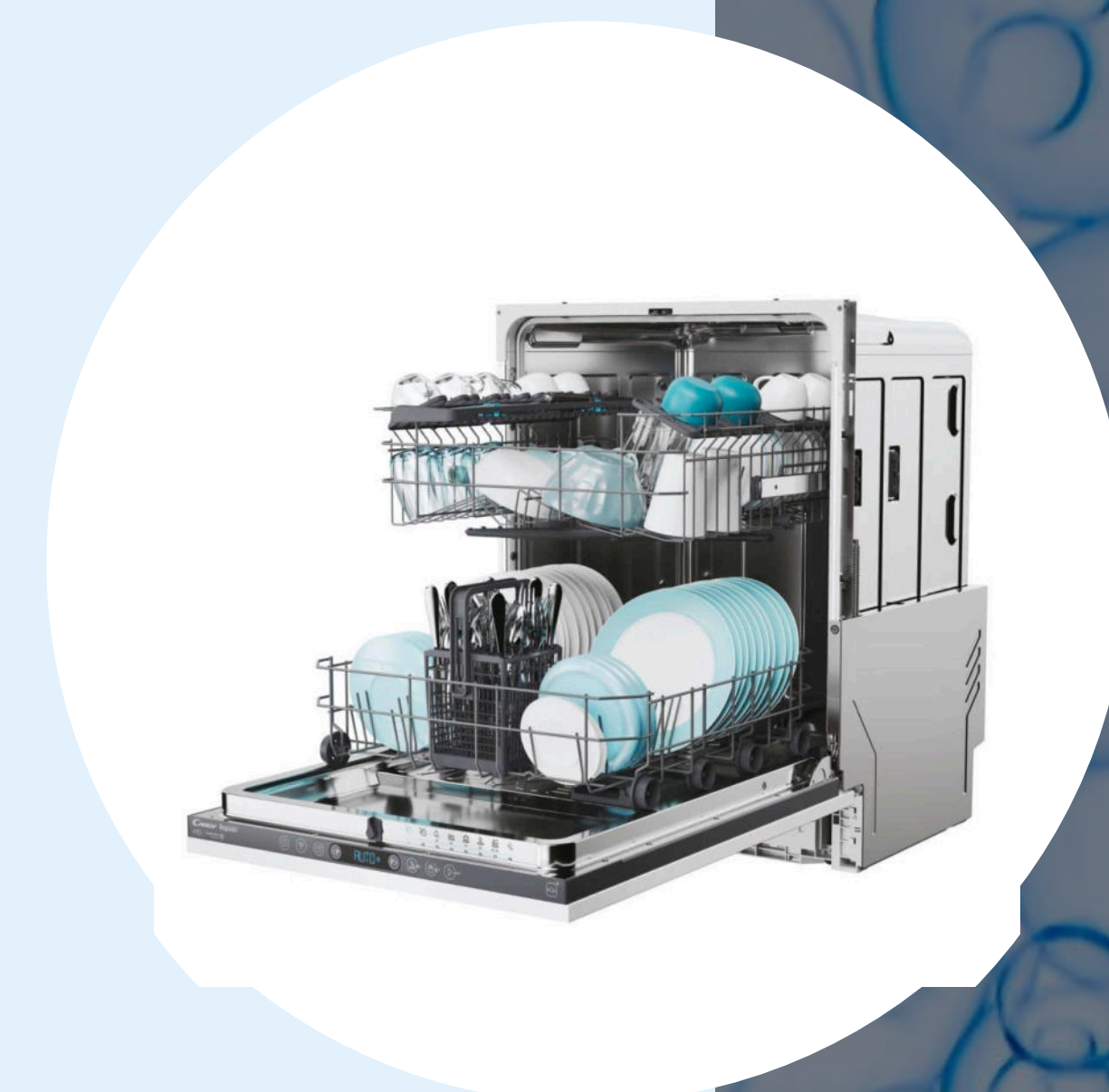
### Innovation

The Candy Rapidò dishwasher features the Wash & Dry 35', a time-saving 35-minute cycle.



### The IFF Value

Our enzymes are designed to perform effectively in short cycles.

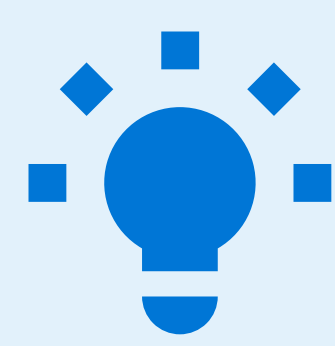


## Auto Dosing

Consumers don't want to waste detergent, which is why many choose pods or single dose units. Manufacturers are responding by optimizing detergent usage with dosing mechanisms built into the machines.

### Innovation

The Miele® PowerDisk dispenses the optimal amount of detergent powder. This means detergents must perform regardless of cycle or conditions chosen.



### The IFF Value

IFF enzymes are produced with our proprietary granulation technology, ENZOGUARD®, to provide a consistent performance time after time, supporting solutions such as auto dosing.

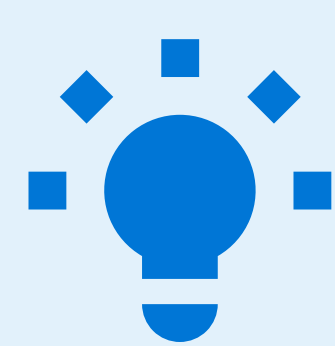


## Artificial Intelligence

AI-powered dishwashers offer customizable experiences that adapt to wash cycles and varying loads. These smart appliances are engineered for durability and sustainability, ensuring reliable performance while minimizing their environmental impact.

### Innovation

Samsung® dishwashers have an AI Wash mode, which uses a high-resolution turbidity sensor and AI algorithms to measure the amount of food particles in the water at each stage, and adjusts the wash.



### The IFF Value

No matter the soil, temperature, or wash condition, our enzymes are designed to remove stains for variety type and load of soils.



# Enzymes As Enablers of Innovation

Modern dishwashers can't do their job without the help of enzyme-based detergents. These hero ingredients give detergents the boost to clean effectively under stressed conditions like lower temperatures and shorter cycles. Optimal cleaning relies on a careful balance of time, temperature, chemistry, and machine mechanical action. As a result, both dishwasher technology and detergent formulations must continually evolve and innovate together.

## The Eco Cycle Paradox



The desire to balance cleaning performance with energy savings has driven trends in dishwasher cycles and temperatures. Doscher from AHAM called dishwashers “a sustainability success story. Dishwashers have already achieved a remarkable level of energy water efficiency, with the average dishwasher manufactured today using 50% less water than models made in 1998.”

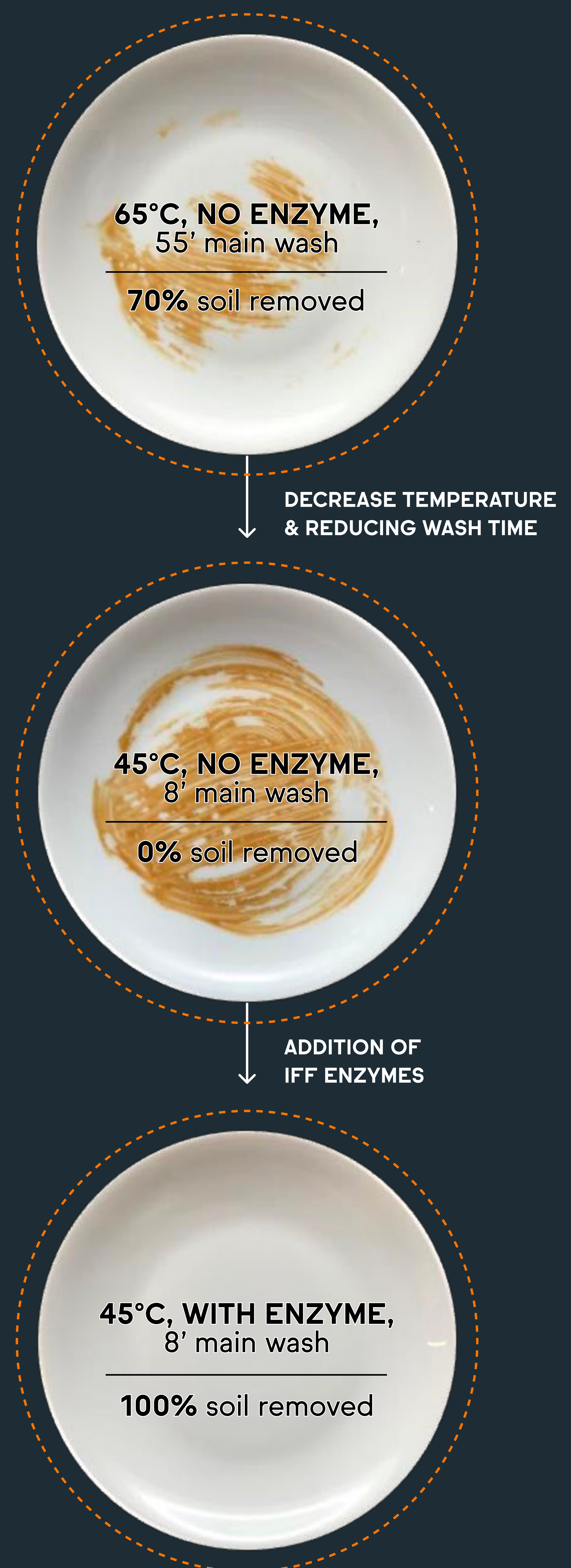


But the greatest efficiency gains will come from optimizing everyday washes. Doscher and retired Prof. Rainer Stamminger say dishes are rarely too dirty to prevent an effective dishwasher cleaning performance. Fresh soils clean faster than stains that are baked on, requiring less mechanical action, time, and temperature. This means dishwashers can handle loads in shorter, cooler cycles – saving energy and time. Enzymes are engineered to consistently perform under those conditions.



Eco cycles use cooler water, but studies show that only a fraction of consumers take advantage of the program due to its lengthy run. Short cycle programs, which use higher temperatures and more energy, are preferred for convenience. However, Stamminger recommends manufacturers pivot to "Short-Eco" programs to combine convenience and lower energy use.

Enzymes can deliver best in class cleaning at lower temperatures and shorter cycles



Tested in Miele GSL2 - soil displayed IKW Creme Brulee

About

30%

of dishwasher consumers use 'eco' programs

At least

50%

of the dishes are washed soon after they are used and soiled

Source: Rainer Stamminger et al, "Introduction of a 'Short-Eco' programme: new data and insights supporting the use of automatic dishwashing to reduce energy and water use in European households," June 16, 2025.



There should be a Short-Eco program, which combines an excellent cleaning performance at low energy consumption and the short duration with the use of modern detergent to bring up performance."



**RAINER STAMMINGER**  
Retired Professor,  
Universität Bonn

Special thanks to retired Prof. **Rainer Stamminger** and **Chris Doscher** of AHAM for their valued contributions to this edition.

To learn more about our trends and enzyme performance insights, please connect with us to discuss how our biosolutions can help you keep pace with the newest technologies.

**Stay tuned for our next installment of The Dish where we will discuss dishwashing detergent labeling and certification.**