



Press Release

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Higher line performance with less water, chemicals and effort

APNR 2.0: Henkel turns no-rinse adhesion promotion into an efficiency lever for metal pretreatment

Düsseldorf – Rising energy and water costs, tighter environmental requirements, and the shift to chrome-free processes are increasing the pressure on metal processors to make pretreatment more economical. With APNR 2.0 (Adhesion Promoter No Rinse), Henkel is introducing the next evolution of its proven adhesion promoter technology. The upgrade combines an improved equipment concept with expanded use cases, keeping one thing firmly in focus: measurable value for line operators. Compared with the previous APNR generation, based on internal Henkel evaluations, APNR 2.0 has demonstrated the potential to reduce process water consumption by up to 50% and compressed-air demand by up to 20% compared with the previous APNR generation, depending on line design and operating conditions.

Since its market launch in 2015, more than 100 APNR systems have been installed worldwide. The technology has gained particular traction where short lines, limited space, or the transition to chrome-free processes demand high flexibility and efficiency. APNR replaces the traditional passivation bath with a precisely metered spray application of an adhesion promoter at the end of the line. The solution is mixed fresh inline and applied as a thin, uniform film to the still-wet surface, eliminating the need for a downstream rinse stage. This enables more compact line layouts, reduces water and chemical consumption while maintaining high levels of corrosion protection and paint adhesion.

For operators, this principle translates into clear operational advantages: the chemistry acts directly on the surface at a defined concentration, while bath aging and complex analytical control become unnecessary. Compared with a conventional final rinse cascade, APNR uses only the amount of water and product required to achieve the target layer. Especially in existing plants with tight footprints, APNR can be retrofitted without major modifications and can noticeably boost the performance of short pretreatment lines. In architectural aluminum

operations, the technology also makes it possible to fully eliminate the conversion bath and implement the transition from hexavalent-chromium-containing systems to chrome-free alternatives with significantly lower water use and maintenance effort.

With APNR 2.0, Henkel is now introducing an enhanced equipment generation. The new EcoFlex control unit combines an updated control architecture with a redesigned pump system to ensure precise and repeatable application, monitors conductivity, pressure, and tank levels, and supports convenient integration into digital systems. The goal is to further reduce water and compressed-air consumption, minimize downtime, and simplify operation for line personnel. In parallel, Henkel is working on formulations with even lower water demand and improved nozzles, helping ensure robust operation even with challenging part geometries and spray concepts.

“Many customers have already addressed the major levers in degreasing and phosphating. With APNR 2.0, we are now giving them a tool to optimize even the last meter of pretreatment, economically and sustainably,” says Steffen Ruesse, Director Global Equipment & Machine Learning Applications at Henkel. “Lower media consumption, less complexity, and even more stable surface performance, this is exactly what the new generation is designed to deliver.”

About Henkel

With its brands, innovations and technologies, Henkel holds leading market positions worldwide in the industrial and consumer businesses. The business unit Adhesive Technologies is the global leader in the market for adhesives, sealants and coatings. With Consumer Brands, the company holds leading positions especially in laundry & home care and hair in many markets and categories around the world. The company's three strongest brands are Loctite, Persil and Schwarzkopf. In fiscal 2025, Henkel reported sales of about 20.5 billion euros and adjusted operating profit of around 3.0 billion euros. Henkel's preferred shares are listed in the German stock index DAX. Sustainability has a long tradition at Henkel, and the company has a clear sustainability strategy with specific targets. Henkel was founded in 1876 and today employs a diverse team of about 50,000 people worldwide – united by a strong corporate culture, shared values and a common purpose: “Pioneers at heart for the good of generations.” More information at www.henkel.com

Photo material is available at www.henkel.com/press

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Henkel's new APNR 2.0 equipment generation: The EcoFlex control unit supports precise and repeatable application of the adhesion promoter.



APNR technology sprays the adhesion promoter directly onto the metal surface at the end of the line, eliminating the need for a subsequent rinse stage.