

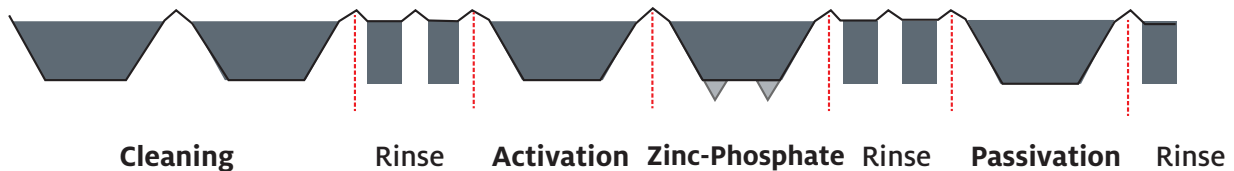


Improving sustainability by novel Phosphate Processes

For more than 130 years, it has been Henkel's mission to provide customers not only with best-in-class products, but also to enable them to work in a sustainable manner. It is our ambition to reduce Henkel's and our customer's environmental footprint by constantly developing innovative solutions.

Zinc Phosphating is the standard MPT-process for automotive components made of steel and galvanized substrates, due to its unsurpassed corrosion performance in combination with various paint systems. Henkel is striving to further optimize this process in order to ease the handling of the products, reducing the environmental footprint and generating process costs savings.

PROCESS SEQUENCE



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An important lever to improve performance of the process is the type of conditioner technology used. Henkel's new generation of Zn-Phosphate-based conditioners are combining the performance of solid Titanium-Phosphate based conditioners with the benefits of liquid Zinc Phosphate-based conditioners.



Performance Characteristics

- Improved coating formation on passives substrates and in box sections
- Excellent corrosion protection at low Zinc Phosphate coating weights and improved coating density
- Improved stable process even with up to 12 months bath lifetime
- Significantly less water consumption and less wastewater generation

	Corrosion Performance	Coating in box sections	Consumption	Water savings	Ease of dosing	Typical bath life	Risk of biological growth	Shelf life
Powder conditioner	Very good	Good	Normal	None	Careful powder dosing needed, or premix tanks	Weeks	Low	24 months
Liquid Zinc Phosphate conditioner	Very good	Very good	Normal	Medium-high	Yes, but 2 components	Months	Possible	6 months
Liquid Zinc Phosphate New Generation conditioner	Excellent	Excellent	Very low	High	Yes, only 1 component	Up to years	Very low	12 months

Highlights of the new BONDERITE M-AC AL2000

The new liquid activator based on Zn Phosphate:

- Superior performance compared to other activator technologies
- Enhanced handling in application and storage
- Enables low temperature Zn-Phosphating

Application Benefits:

- Significantly higher water savings
- Reduced maintenance
- Wide operating window
- Up to 45 seconds less processing time
- Suitable for dip & spray application
- Fits the TwoStep or FlexProcess
- Improved stable process with up to 12 months bath lifetime



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