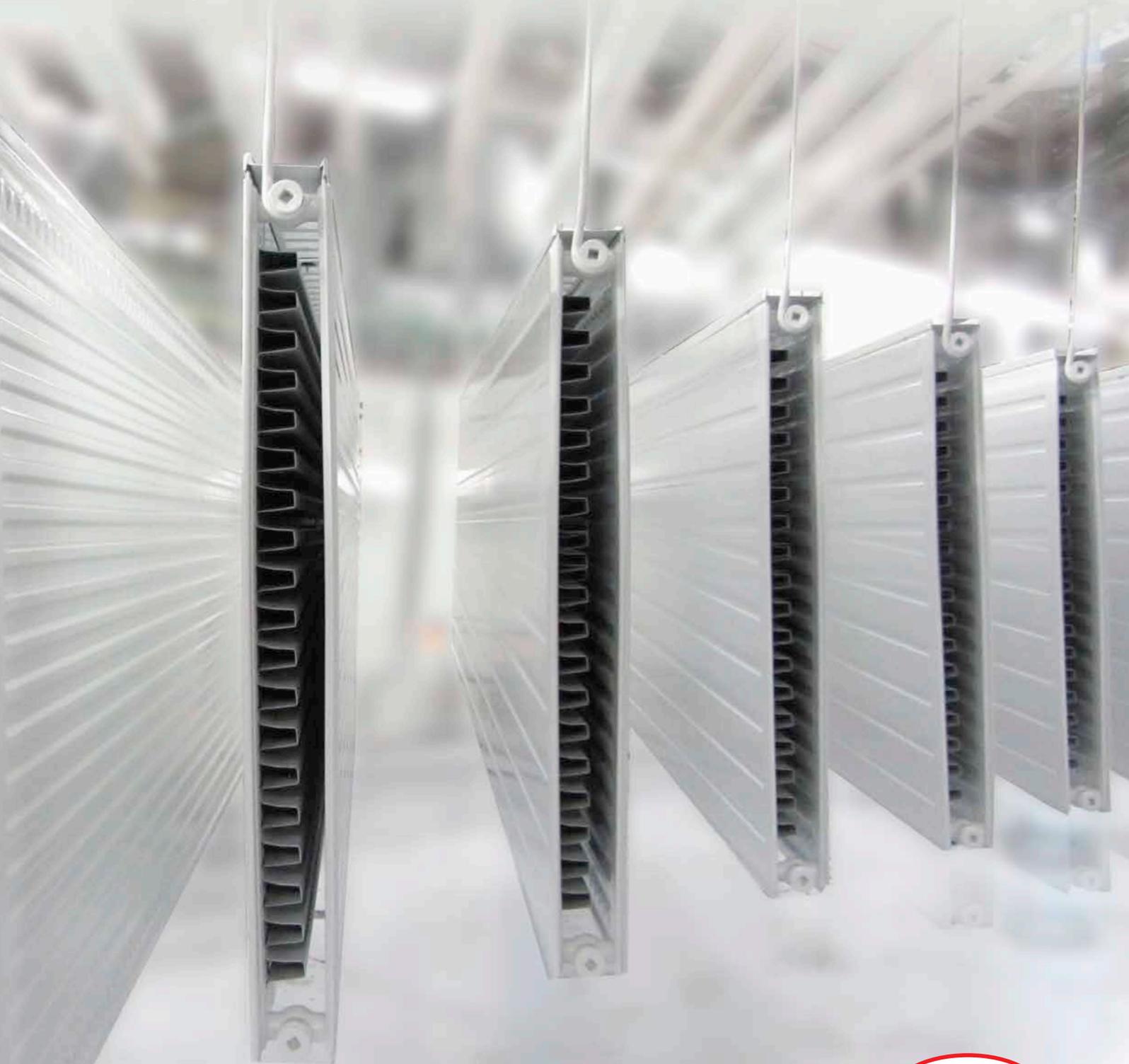


BONDERITE®

Outstanding coating performance

The autodeposition process (Bonderite M-PP series) –
efficient, reliable and sustainable.



BONDERITE – Upgrades your standards.



Upgrade your standards. BONDERITE functional coatings.

BONDERITE solutions create competitive advantages across the industrial manufacturing marketplace. Its processes deliver superior cost-in-use and operational efficiency through a broad portfolio of cleaners, surface treatment and coating products.

Performance redefined – BONDERITE coatings

BONDERITE coating processes lead to outstanding performance and offer a strong combination of innovative products that bring reliability and sustainability. Your manufacturing operations benefit from the simplified coating process and improved corrosion resistance features. This leads to higher value, while meeting the stringent environmental requirements of today and setting the standards of tomorrow.

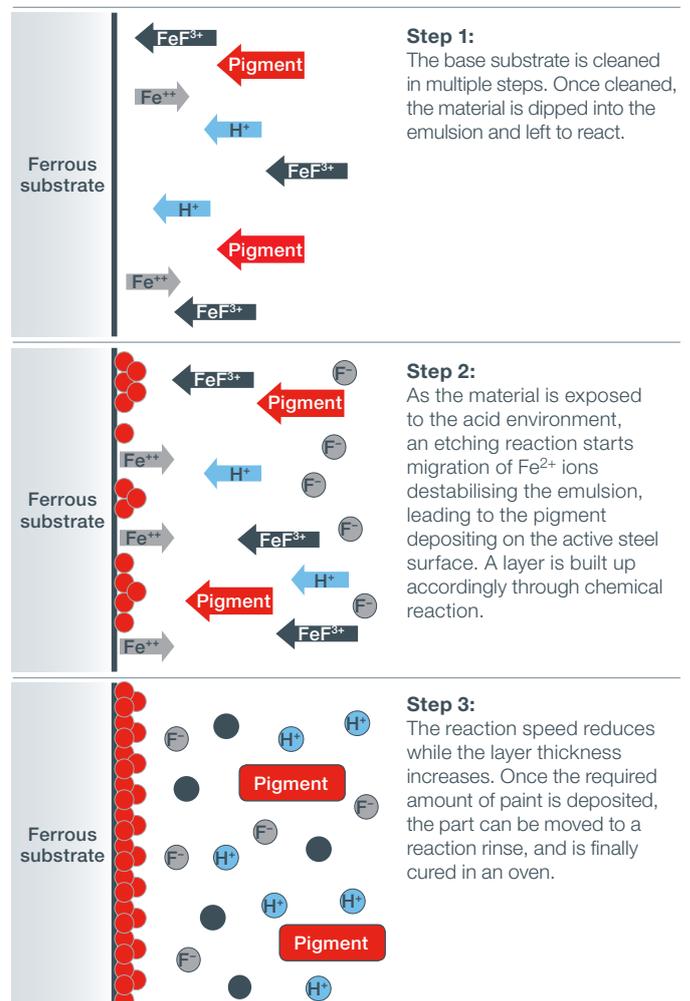
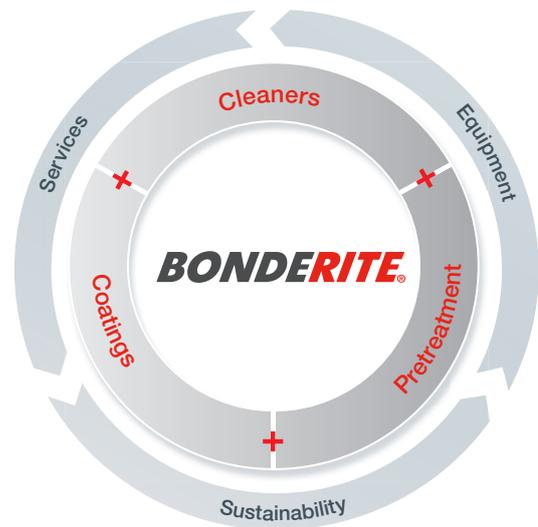
Henkel provides for the autodeposition coating process all BONDERITE branded chemicals (degreasing & surfactants) as well as the coating chemistry itself together with specific additives to enhance final product features in combination with in-depth process know-how.

The smart coating solution

Autodeposition represents a process to apply a layer of anti-corrosive paint directly on to steel substrates using a chemical reaction:

- No electrical current
- Metal pretreatment and primer in one
- Unique throwing power properties ('it coats where it wets')
- Uniform edge coverage
- Self-levelling reaction
- Shorter footprint & process time compared to conventional paint systems

The BONDERITE M-PP autodeposition process delivers a thin organic coating with high anti-corrosion properties, while increasing the process efficiency over traditional finishing methods. This allows the application equipment and process control to be easier and lower in cost. The combination of metal pretreatment and primer in one process provides a lasting finish with the unique feature of coating both inside and outside of parts (e.g. tubular sections).



Global markets. BONDERITE M-PP applications.

Henkel provides customers with technical, manufacturing and business development support for this unique technology in every region of the world. Some typical commercial applications are shown below.

Parts and industries

The autodeposition process has been in commercial use since 1975, and is applied worldwide at numerous paint shops and jobbers. Since its market introduction, this simple and reliable industrial coating process has coated billions of square meter of steel surfaces worldwide for a wide variety of applications.

Autodeposition can be used for all steel components, and offers unique properties to hollow structures. This process generates clear benefits when applied on large elements such as chassis, cabins and frames in the area of:

- Agricultural
- Automotive
- Construction vehicle applications
- White goods
- HVAC radiators

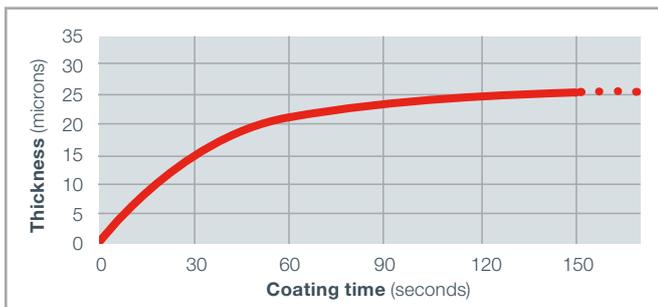


Based on performance. The BONDERITE M-PP process.

BONDERITE M-PP processes are known as the “simple solution” to reduce the number of process stages and complexity, and thus being more ecofriendly and significantly less expensive, especially in green field applications.

The typical process

Autodeposition lends itself to production using chain conveyor systems, hoist systems, and “power and free” mechanisms. A typical autodeposition coating process consists of seven stages plus oven curing.



The autodeposition coating process is “self-limiting” and controllable to exact tolerances.

Key benefits

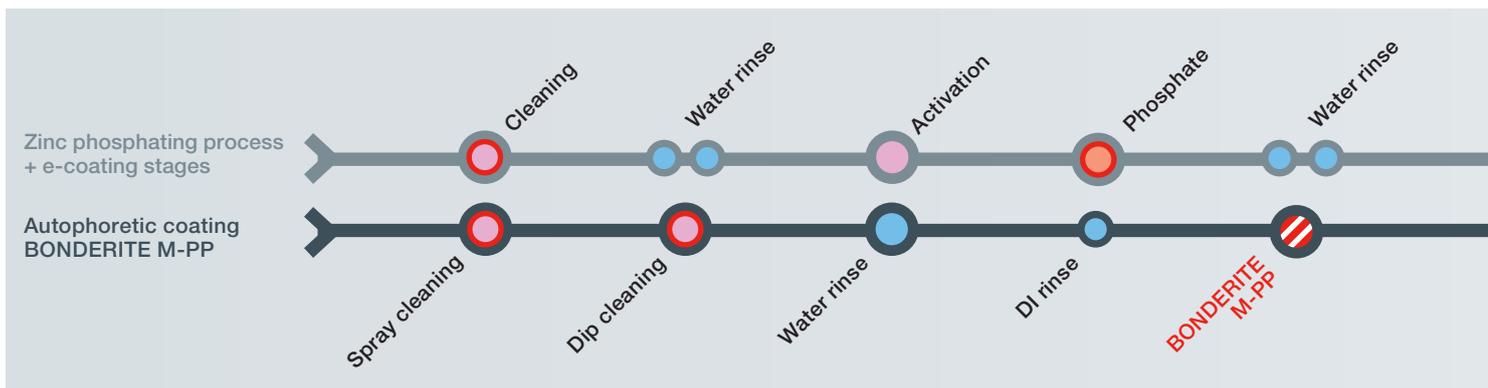
Henkel’s patented aqueous, organic coating process efficiently coats parts without the need for complicated components or expensive maintenance equipment, such as rectifiers. The process runs VOC-free, bringing significant environmental savings & leading to a major reduction in energy consumption.

- Water-based non-electrical process without solvents or heavy metals (fire/worker safety)
- Resource-efficient by ensuring better results with fewer process steps
- Lower investment and running costs
- Smooth homogenous coating around edges
- Coats only reactive metals (assemblies are possible)
- Superb cavity corrosion protection (on tubular or intricate design areas)
- Flexible to variable throughput rates (racking/line speed)



Intersection of a typical metal surface uniformly coated with BONDERITE M-PP

E-coating and autophoretic coating process stages



E-coating vs. autophoretic coating.

The processes in comparison.

With its BONDERITE M-PP process, Henkel offers an advanced system which is significantly superior to traditional electro-coating processes. The necessary investments to make a switch from a conventional painting process to this technology will have a short payback time.

	E-coating	Autophoretic coating
Chemical process		✓
VOC-free process		✓
Process based on electrical current	✓	
Co-curing with top-coat		✓
Coating inside and outside		✓
Coats only reactive steel substrates (assemblies are possible)		✓
No phosphate pretreatment and conditioner needed		✓
Process steps	10 – 12	7
Ability to coat large volumes or big parts	✓	✓
Heated active bath	✓	

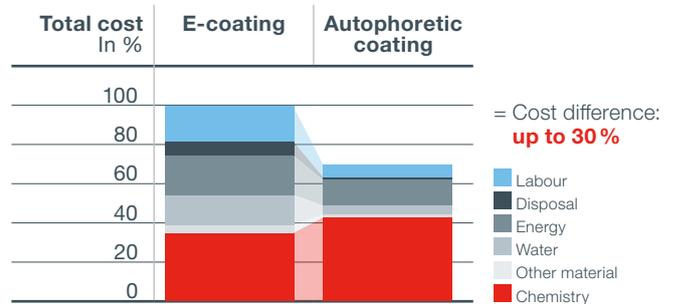
Easy to switch

The competent Henkel team will assist you to switch to the new process. We assess your current process and evaluate which steps need to be adapted to fit a Bonderite M-PP process layout.

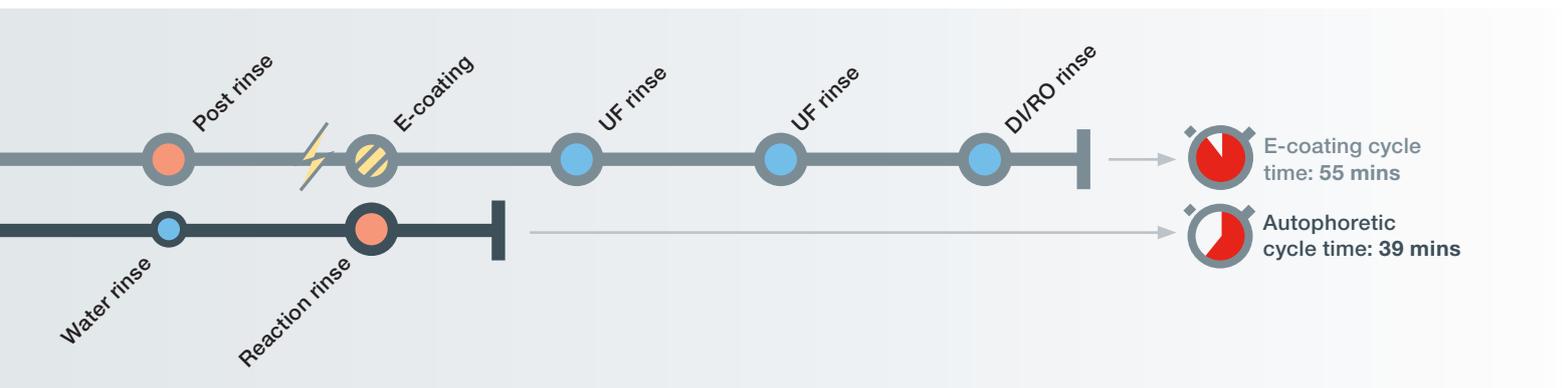
Less is more!

Switch off electricity and get more performance! The one-time investment pays for itself already after just a short time!

BONDERITE M-PP decreases total process costs*



* Real life example; cost difference will vary from case to case. Typical savings range up to 30%.



Committed to leadership. Sustainability with BONDERITE.

Henkel uses its in-depth knowledge of the industry as well as a broad portfolio of technologies to optimise production processes along the entire value chain accomplishing a reduction of CO₂ emissions, waste, water and energy consumption. Thus, Henkel’s focus is set on its customers and their sustainability goals.

Sustainability is integrated into every step of product development so that customers anywhere in the world can use solutions tailored to their needs to increase their added value without having to worry about their environmental footprint. Henkel ensures this by keeping to its standard of the six focal areas within the sustainability strategy (see chart below).

An excellent example as part of a sustainable production is Henkel's autophoretic coating process:

- Very resource-efficient since fewer chemicals are used
- Less waste and less time to maintain the equipment
- No electrical current needed

Continuous optimisation of products and technologies provide leading performance with best-in-class features for environmental and consumer protection as well as health and safety.

Sustainability focal areas and targets, regarding M-PP processes



Life cycle reliability. Henkel process services.

Besides being a supplier of superior functional coating technologies, Henkel is in the business of solving customers' problems and improving their production operation. From design and consultancy, product development and dispensing equipment to process control, Henkel has a solution for every process cycle. Available worldwide. Together with customers and partners, Henkel develops products that assure reliable and optimum compatibility.



Selection service

BONDERITE offers an extensive portfolio of premium surface technologies and process solutions in general industries. Experienced specialists with significant knowledge consult and support customers matching individual requirements. Detailed information and training help to find the best solution.

Analytical services

Henkel can analyse the complete production process for customers. In this step, Henkel reviews all parameters required to create detailed documentation such as test data, material input, process improvements. The evaluation decreases failure rates. The result is a custom-made solution with reduced production cycle times and rejection rates by applying the appropriate Henkel products.

Lab testing

Henkel is able to test applications of your process in its own labs. Individual process steps are perfectly matched to each other and can be smoothly integrated into your plant.

Process optimisation

Henkel helps customers to design more simple and more efficient production processes. Products are adapted to fit customers' individual requirements. The solutions are designed to all environmental safety criteria as well as meeting sustainability regulations. Henkel supports you in gaining advantages by continuous process optimisation.



Customer training

Henkel customers benefit from the enormous know-how of the world market leader for functional coating. In training sessions, customers learn about products in detail and how to apply them correctly. "What if" training sessions help to solve problems with customised training manuals.

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