

Aluminium Coil Industry:
Eco-friendly technologies for advanced
coil pretreatment and passivation.



Chemetall
expect more⁺

Expect more from a leading global supplier of applied surface treatment technologies



As one of the leading global players, Chemetall is familiar with surface treatment in all its facets. Quality products and services are the prerequisite of our business success. However, at Chemetall, we know that it takes more than that to be a preferred global supplier.

The chemical treatment of metal surfaces is Chemetall's core competence. Like no other company, we base the focus of our worldwide activities on the development and implementation of customized technology and system solutions for surface treatment. The portfolio comprises technologies for cleaning, giving corrosion protection, sealing, improving paint adhesion, and facilitating the forming and treatment of metals. Globally established technologies, for example Oxilan®, Gardobond® and Ardrex®, are used in the most diverse market sectors from automotive to aerospace, from the appliance to architectural and construction industries. Over the past decades, Chemetall has been playing a leading role in shaping metal treatment.

In focus: value added for customers

Good products and quality services are the prerequisites for a successful business. However, at Chemetall we believe that true success lies in a close and partnership-based cooperation with customers. It is therefore our aim to offer a value added product with top quality processes, on-time deliveries and excellent technical service.



Chemetall company headquarters: Frankfurt am Main, Germany

Globally active, locally based

The global business activities of Chemetall are based on tradition and experience dating back all the way to the 19th century. Nowadays, Chemetall is one of the leading global players in surface treatment with headquarters in Frankfurt am Main, Germany. With 2,500 employees, 40 subsidiaries and 22 production sites, Chemetall is a financially strong and fast growing company with a long-term orientation, and we continue to aim high: we intend to strengthen our quality and innovation leadership even further. With sales and service teams, laboratories and warehouses at locations all around the world, we are operating in close proximity to our customers.

Sustainably successful

Responsible practices and sustainable development are key principles of Chemetall. Our first priority is to consistently implement environmental protection and work safety guidelines and to continuously improve the safety of our worldwide production sites. Chemetall acts responsibly with a view to society and the environment and puts them on an equal footing with its financial targets.

Reliable supplier to the coil industry

Metal pretreatment, thin organic coatings and coil coatings play a vital role in the manufacturing of high-performance coils. As a major supplier to the coil industry, Chemetall is working with all leading steel and aluminium mills and job-coaters worldwide on the development of advanced solutions for coil applications.

With our highly effective and broad range of products, we can support our customers throughout the entire process – from cleaning, skin pass and post-treatment by phosphating or passivation in galvanizing processes through to pretreatment, primer and topcoat application during the coil coating process.

Benefit from our long-standing global experience in the coil business and our comprehensive technical services.

➤ More to read on www.chemetall.com

Advanced chrome-free technologies for coil applications



Aluminium and steel coil finishing is Chemetall's focus. For both materials, we offer a strong portfolio of pretreatment processes, thin organic coatings and coil coating technologies, which meet today's and tomorrow's market needs. An additional plus for our customers: our well-equipped laboratories, a wide range of services, and extensive global expertise.

Recent decades have seen remarkable advances in the pretreatment, coating and painting technologies, all aimed at enhancing performance, simplifying process flows and achieving greater process cost savings. Major efforts have also been taken to meet increasingly stringent health, safety and environmental standards. The wide use of chrome-free technologies clearly demonstrates that high quality and environmental compliance can go hand in hand.

Long-term protection and aesthetics

Our main activities in the coil industry focus on an effective pretreatment and the enhancement of thin organic coatings and coil coating technologies. Whether it is for appliances, building products, garage doors, car bodies or can-end stock – our efficient technologies are used to provide a high-quality, durable and long lasting protective coating. Our specialty technologies allow for excellent corrosion protection, very good metal forming and outstanding paint adhesion. Whether it is aluminium, cold-rolled steel, galvanized steel or stainless steel – metals pretreated with our technologies are used in the automotive, appliances, building, electrical and packaging industries.



Comprehensive technical services

With up-to-date application processes, drying technologies and analytical facilities, Chemetall provides a comprehensive range of technical support services for customers' processes. In our coil coating laboratory, we offer high-tech equipment for near infrared (NIR) or UV curing. Highly qualified laboratory technicians are available to help our customers optimize their processes.

Cooperate to innovate

As a leading coil coating supplier, Chemetall focuses on the development of sustainable solutions – with regard to ecologically sound processes as well as enhanced technologies that are viable for the future. Close cooperation with customers, universities, external research institutes, and plant engineering companies forms an integral part of our research and development work for coil coating applications. This enables us to work on tomorrow's challenges today, such as a completely metal-free process.

Broad portfolio

Many leading companies have been relying on Chemetall's broad range of high-performance technologies and technical services for many years – and this is for a good reason: our premium surface treatment technologies allow quality standards to be raised while meeting customers' manufacturing objectives, legal requirements and environmental targets.

Technologies at a glance

Gardobond®	Pretreatment and Phosphating Processes
Gardobond® PC	Permanent Coatings, Pretreatment Primers
Gardoclean®	Cleaners
Gardolene®	Activating and Passivating Agents
Gardolube®	Skin Pass Fluids
Gardorol®	Corrosion Protection Oils
Gardo® Protect	Corrosion Protection Primers, Pretreatment Primers, Electrical Insulating Coatings, Primers, Topcoats
Oxsilan®	Multi-Metal Pretreatment, Passivating Agents
Permatreat®	Pretreatment Agents for Aluminium and Galvanized Steel

Aluminium Packaging

Permatreat® 1903 and Permatreat® 1700



Beverage can-end stocks, food containers or closures – Chemetall's surface treatment technologies can be found in almost every aluminium packaging product. Our advanced, eco-friendly technologies are used by all leading coil coating manufacturers and are suited for the most versatile packaging solutions – for many good reasons.

Aluminium packaging solutions deliver freshness, convenience, safety and innovative design. They provide the lightest „complete barrier“ and are impervious to light, water, oils, fats, oxygen and microorganisms enabling a long shelf life for the product. On top of that, they can also be recycled over and over again without any loss of quality and thus meet source reduction and sustainability goals.

Being at the forefront of developing innovative technologies, Chemetall was the first company to launch a chrome-free aluminium pretreatment process to the food packaging industry many years ago. Today, our Permatreat® 1903 is the most used technology in the manufacture of a significant proportion of the total global aluminium can-end stocks and other packaging materials. This chrome-free process demonstrates outstanding performance with regard to adhesion and corrosion protection and shows similar or even better quality results than conventional chrome phosphate coatings. These excellent results have been repeatedly achieved for a wide variety of paints in many detailed studies carried out in cooperation with our customers.



Permatreat® 1903 can be used with a broad range of both solvent-based and water-based paints in standard testing, including feathering, dowfax, MSE and retort. Our technology can be used either as a no-rinse or conventional pretreatment and gives equally good results in both. This easy-to-operate pretreatment has a very simple test method to determine coating weight and can be readily controlled automatically using pH-values. Today, all major can manufacturers have globally approved our chrome-free technology, and also key paint manufacturers support our innovative process.

Where a trivalent chrome product is still requested, Chemetall can offer Permatreat® 1700, which is suitable for multiple applications in the food packaging industry.

Your Plus:

- + Chrome-free technology
- + No-rinse and conventional pretreatment processes
- + Performance equivalent to chrome-based applications
- + Can be used in conjunction with a broad range of paints
- + Suitable for existing lines with only minor system modifications
- + Approved by all major can manufacturers
- + Approved by Nehring Institute (migration test)

Aluminium Construction and Building Products

Gardobond® X 4650 and Gardobond® X 4657



Chemetall's advanced pretreatment technologies can be used prior to coil-coating or for composite manufacturing and meets the requirements set out for all architectural applications – from architectural monuments to residential buildings, from sidings to roofings and gutters, from ceilings to roof windows. Quality, process reliability, cost effectiveness, as well as a low environmental impact are just a few of the benefits of our technologies.

The advantages of aluminium are especially evident in the architectural industry: Thanks to its outstanding durability, aesthetic look and high strength-to-weight ratio, this light-weight material allows architects and builders to design impressive structures with magnificent facades which last for decades.

Chemetall's pretreatment technologies play an important role in the development of high-quality and innovative coating systems required to enable the creation of modern architectural forms. Our technologies ensure excellent corrosion and weathering resistance and give excellent formability properties to aluminium sheets.

With our many years of experience in the architectural and construction industry we offer a comprehensive portfolio of advanced solutions for all stages of coil pretreatment: From cleaners and pickling agents to remove grease, oil, and metal fines allowing a clean surface, to a variety of pretreatment processes reinforcing corrosion resistance and hence improving paint adhesion.



Our chrome-based as well as chrome-free processes, such as Gardobond® X 4650 and Gardobond® X 4657, are the ideal solutions for ecologically advanced pretreatment operations. Our technologies can be applied in a no-rinse process and as such, allow for a cost efficient production meeting current and future environmental demands.

Our processes are compatible with a wide range of primer and topcoat systems for the production of aluminium coils in different metallic glosses and assorted colors. Compared to chrome-containing processes, our Gardobond® X technologies do not require any changes to be made in the drying.

Leading coil coating manufacturers all over the world trust in Chemetall's proven eco-friendly technologies, to help architects design the most innovative structures.

Your Plus:

- ⊕ Complete range of pretreatment technologies
- ⊕ Eco-friendly, chrome-free and robust processes
- ⊕ No-rinse processes
- ⊕ Enhanced corrosion protection and increased adhesion
- ⊕ Easy control of coating weights
- ⊕ Low chemical consumption
- ⊕ Decrease in waste water treatment cost

Automotive and Transportation

Gardobond® X 4591 and Oxsilan® MM 0705A



Lightweight design, sustainability and economics are important drivers for the automotive industry. While the low density of aluminium make vehicles lighter and as such, more fuel efficient, Chemetall's chrome-free technologies for aluminium provide an eco-friendly and cost-efficient pretreatment process for a variety of automotive parts.

With the development of advanced aluminum alloys and coating technologies, the lightweight substrate is increasingly used in a wide range of vehicles either as outer and inner body applications or even crash-relevant structural parts. Manufacturers around the world are taking advantage of aluminium to make cars lighter, more efficient and recyclable, while maintaining performance, comfort, design, safety and strength requirements.

For high-quality, ecologically-sound, cost-efficient aluminium pretreatment of strip or sheet materials prior to their assembly, car manufacturers put their trust in the successfully proven technologies of Chemetall. Our chrome-free processes form an impermeable conversion coating which prevents further oxidization, ensuring enhanced corrosion protection and a long functional life.



Gardobond® X 4591 and Oxsilan® MM 0705A are the technologies of choice when it comes to meet the stringent demands of the automotive industry. They comply with the required adhesive specifications and hold appropriate approvals. Our processes show very good bonding qualities, for example with epoxy adhesives, and enable an excellent weldability of aluminium sheets due to the low, homogeneous electrical resistance of the surface after treatment. This provides a flexibility to manufacturers to create a distinctive design that defines their brands.

Our advanced no-rinse processes are compatible with the subsequent car body pretreatment based on either a zinc-phosphate or our silane-based Oxsilan® process. Our chrome-free technologies are used by all leading automotive OEMs and suppliers.

Your Plus:

- ⊕ Chrome-free, no-rinse process
- ⊕ Very good weldability (MIG welding, spot welding)
- ⊕ Suited for demanding adhesive applications
- ⊕ Good adhesion, e.g. epoxy adhesives
- ⊕ Good corrosion resistance
- ⊕ Leaves metal surface suitable for zinc-phosphate or Oxsilan®-based processes

Chemetall at a glance

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The chemical treatment of metal surfaces is our core competence: Our products are developed for cleaning, giving corrosion protection, sealing, improving paint adhesion, and facilitating the forming and treatment of metals. Our globally established technologies are used in the most diverse industry sectors and have played a leading role in shaping metal treatment.



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