Battery solutions
Steel battery housings

General Metal Finishing | Product portfolio | atotech.com



Enhancing the durability of the battery pack

Steel battery housings require electromagnetic shielding and special corrosion protection lasting the vehicle's lifetime. Their surfaces allowing for adhesion to subsequent paint and fire-retardant layers must meet requirements for thermal and dielectric resistance and corrosion protection. Implementing the correct surface finishing solution is essential in achieving all the needed component characteristics.

Atotech® advanced surface treatment for steel battery housings

MKS' Atotech offers a comprehensive range of sustainable cleaners and surface finishing processes for battery modules and housings. Highly efficient zinc nickel electrolytes provide unmatched corrosion resistance while our corresponding passivation processes offer seamless adhesion to subsequent paint and fire-retardant layers, resulting in a high-quality finish that meets performance and safety requirements. Our dedicated auxiliary equipment is designed to diminish wastewater generation, water and energy consumption and help reduce the carbon footprint. Our Atotech heat-resistant zinc flake coatings offer excellent corrosion resistance and at the same time fire and heat spreading protection.

Powder paint or fire-retardant applications pose challenges on paint applicators. As battery covers are expensive to produce, defective parts reclamation is a must. Our Master Remover® paint stripping processes efficiently and sustainably help reclaim high-value parts and clean painted fixtures.

Pretreatment and electrolytic plating processes for high-strength steel battery housings

Pretreatment	**Zinc nickel electroplating**	**Passivation and adhesion promoter**	**Sealer (optional)**	**E-coat or fire redardant**
UniPrep® UniClean®, TriMax®	Zinni® + Reflectalloy® acid and alkaline electrolytes	EcoTri® NC, EcoTri® HC 2, Tridur® DB	Sealer 350 WL8, Sealer 300 W 2.0	

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Our electrolytic processes and auxiliary equipment for sustainable production

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UniPrep: Long life, low temperature degreasing solutions reducing energy consumption and wastewater treatment
UniClean, Tri-Max: Full range of soak and electrocleaners
Zinni + **Reflectalloy**: Acid and alkaline zinc nickel electrolytes meeting the highest corrosion protection requirements
EcoTri NC, **EcoTri HC 2**, **Tridur DB**: Passivates enhancing corrosion protection and adhesion to subsequent coatings
Sealer 350 WL8, **Sealer 300 W 2.0**: Organic and inorganic transparent sealers providing superior appearance and corrosion performance

Features and benefits

- Improved quality and productivity
- Reduces CO_2 emissions
- Energy savings
- Low water consumption
- Wastewater reduction
- Chemical savings

The **CMA (Compact Membrane Anode)** technology inhibits anodic oxidation and prevents the formation of organic breakdown products during the alkaline zinc nickel process. The technology impedes the cyanide formation, which generally proceeds during anodic oxidation in all alkaline zinc nickel electrolytes. Our **Atotech CMA closed-loop system** reduces the volume of sludge (up to 95%), waste, and rinse water. The system enables the decrease of chemical consumption of organic additives (more than 75%), sodium hydroxide (up to 90%), nickel, and zinc.

Features and benefits

- Reduces chemical consumption
- Reduces wastewater treatment burden
- Reduces overall energy consumption
- 95% reduction of wastewater and sludge
- 95% of NaOH recycling possible
- Ideal solution to reduce CO_2 footprint

The Atotech ion exchange system, **Tricotect®,** selectively removes contaminating metals from high-performance passivates. Compatible with many Atotech trivalent chromium passivates, the continuous on-line purification operation does not interrupt production, providing a potentially unlimited bath life.

Features and benefits

- Eliminates the need for new make-ups and minimizes wastewater
- Significant chemical savings

Atotech zinc flake coatings increase battery safety

The key criterion for electric vehicle safety is battery housing fire protection. Our cadmium, lead, nickel and boron-free zinc flake solutions as single coatings or combined systems pass the required corrosion resistance of 500 to 1,000 hours against red rust and are unsusceptible to heat over 450 °C for a minimum of 10 minutes, preserving vital minutes for EV passengers to disembark in the event of a fire.

Zintek® 200 XT: The silver zinc flake basecoat provides outstanding corrosion protection with delayed white rust formation.

Zintek 200 XT + **Zintek® Top XT**: The inorganic, clear topcoat combined with the premium basecoat provides excellent corrosion protection in NSST and best-in-class performance in cyclic corrosion test.

Zintek 200 XT + **Zintek® Top**: The clear topcoat combined with the basecoat increases the corrosion protection.

Zintek® 400 HT: The silver organic zinc flake basecoat is highly temperature resistant.

Zintek® 300 HP: The nearly black inorganic zinc flake basecoat offers excellent corrosion protection.

Zintek 300 HP + **Techseal® Black SL F**: The combination of the organic black topcoat and the black premium basecoat provides excellent corrosion protection and outstanding chemical resistance.