

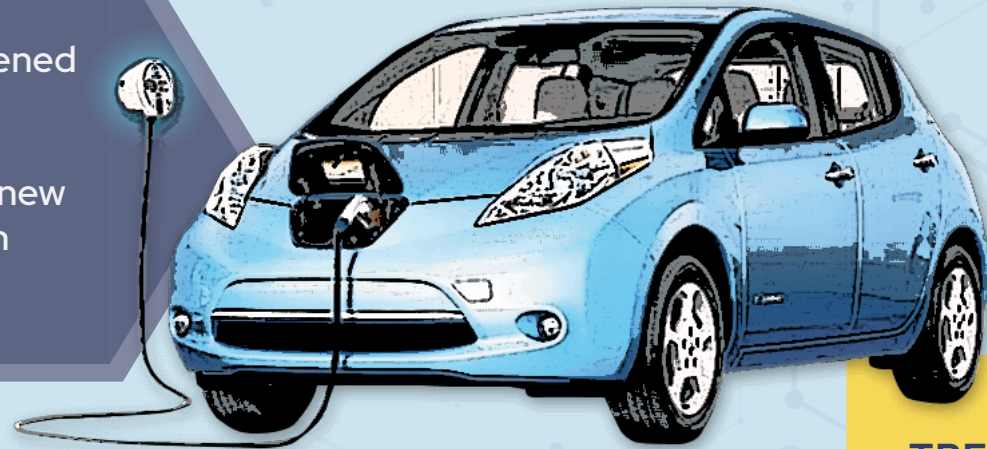
THE AUTOMOTIVE SECTOR HAS A PROBLEM WITH PAINT

Sustainability trends continue to drive market innovation

The painting stage accounts for up to **60% of energy consumption** for automobile manufacturing and **95% of VOC emissions**.



- Climate concerns have tightened regulations worldwide
- Pressure to deliver on a new passenger-centric vision



FROM

DRIVER EXPERIENCE FOCUS
ENGINE POWER
UPFRONT COST

TO

PASSENGER EXPERIENCE FOCUS
LIFECYCLE COST
SUSTAINABILITY

TRENDS

- ↑ Lightweighting
- ↑ Resource scarcity
- ↑ Autonomous vehicles

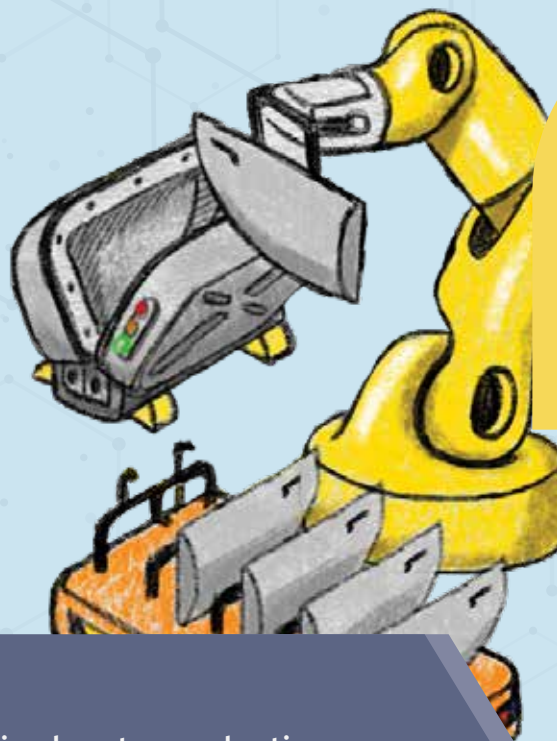
Requirements for Automotive Paint are responding ...

The Automotive Paint line is the focus for a step-change, as it makes up **40% of plant CAPEX** and **60% of plant energy**.



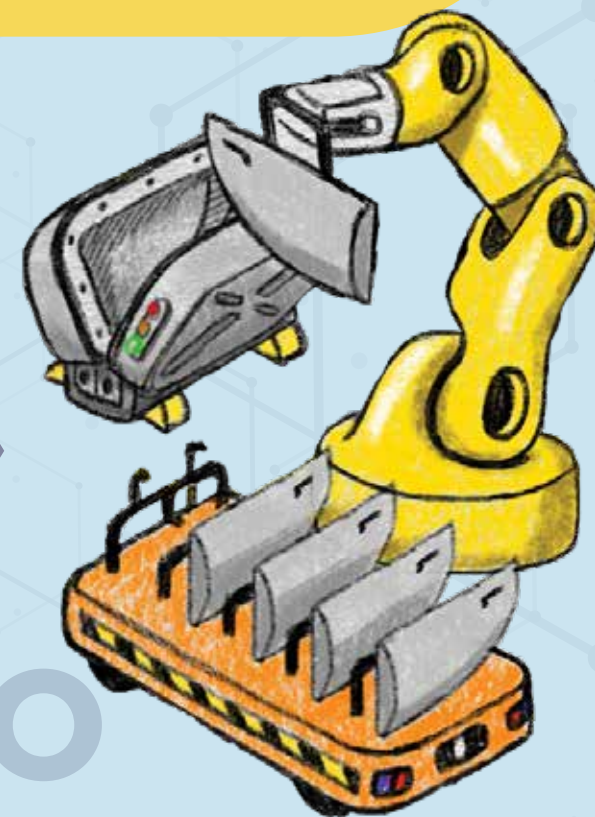
FROM

- A single-step, robotic process is the holy grail
- Single-layer coating system is the aspiration



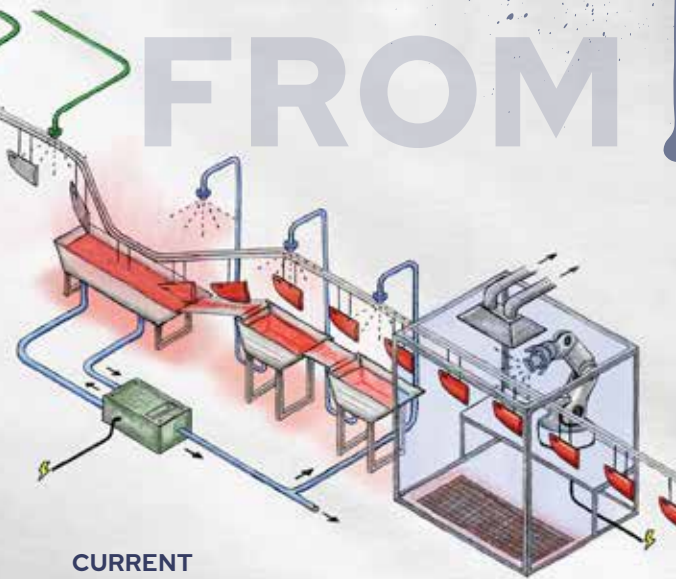
TRENDS

- ↑ Mixed substrates
- ↑ Component shape complexity
- ↑ Thermal mass challenges
- ↑ Warranty length
- ↓ Heavy metals



TO

FROM



CURRENT

- Requires multiple wet/dry processes
- Relies on 177°C (350°F) bake
- Emissions are extracted using natural gas-fired thermal oxidation and air filtration
- Water filtration and treatment are required

Disruptive solutions are emerging

Functional coatings will be an important enabler for the industry's innovation.

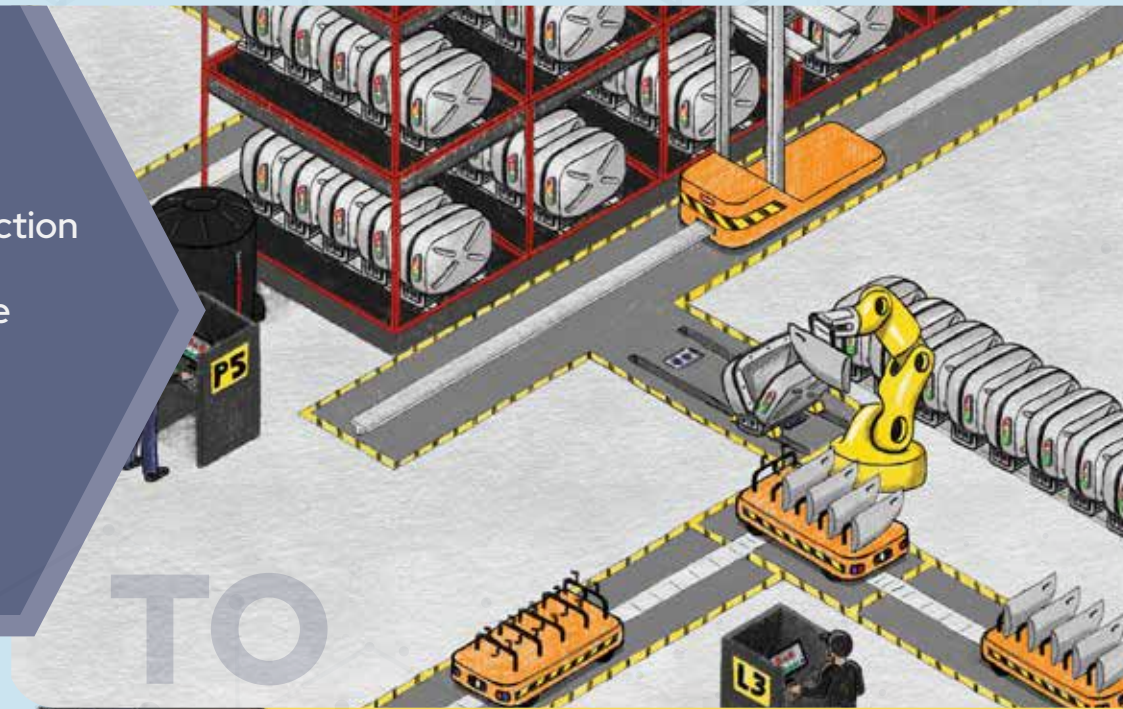
CIRRUS CAN ASSIST YOUR TRANSITION

- ↓ **VOC** Full immersion, overspray collection
- ↓ **GHG** No-bake, ambient-temperature cure, lighter product
- ↓ **Cost** Fewer steps = smaller footprint
- ↓ **Wear** Lifecycle cost

FUNCTIONAL SURFACE POSSIBILITIES ENABLED

- ✓ Novel mechanisms for generation of colour
- ✓ Impact on reflectivity (LIDAR)
- ✓ Thermal management
- ✓ Enhanced durability
- ✓ Self-cleaning
- ✓ Low drag

TO



PROPOSED CIRRUS PAINT-FREE COLOUR™ APPLICATION

- Robotic loading of components into self-contained cells
- Closed-loop: Liquid discharge and heat loss ↓
- Automated despatch of finished parts

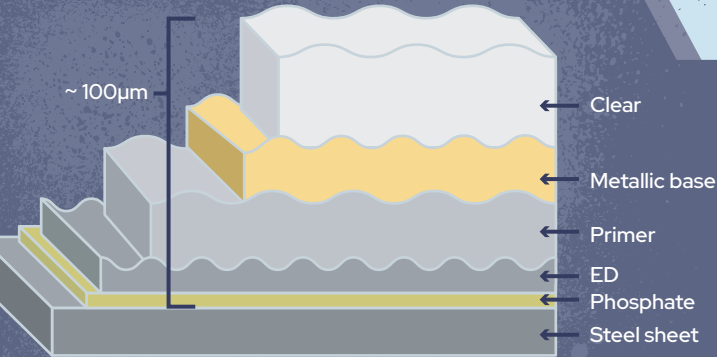
Cirrus black spiral coated aluminium →

The future of Automotive Paint

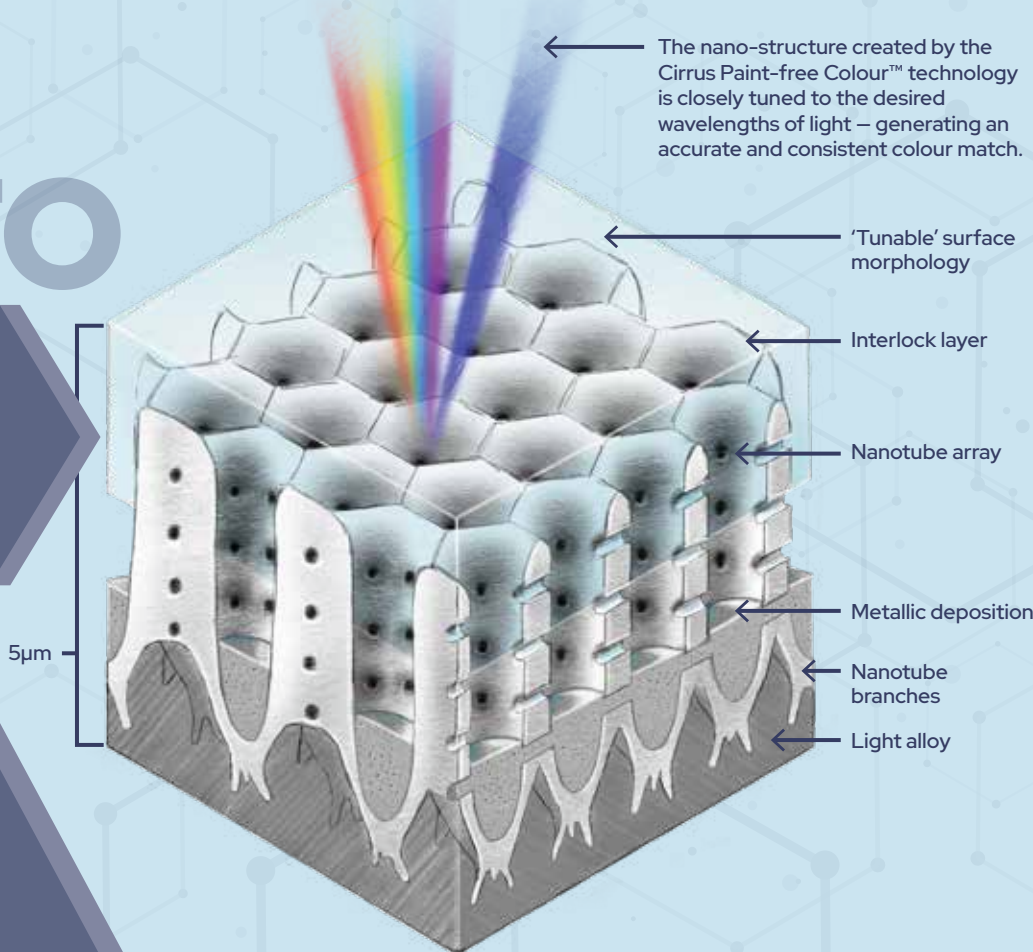
Cirrus Paint-free Colour™ is a patented coating technology that delivers greater energy efficiency, environmental friendliness, and lightest-weight protection.

FROM

TO



CURRENT AUTOMATIVE COATING LAYERS



Cirrus black spiral coated aluminium



TOUGH

Composite coating – etches into and seals alloy.



LIGHTWEIGHT

Subtractive process – components typically weigh slightly less post-coating.



SUSTAINABLE

Closed-loop system – no VOC/particulate emissions, no baking.

Find out more about Cirrus Paint-free Colour™ at cirrusmaterials.com