Sustainability and Innovation in the Coatings Industry

Key Trends and Challenges

Dr. Robert Roop, SVP and Chief Technology Officer, Axalta

AT A GLANCE

We innovate **smarter** surface solutions for **better living** and a **sustainable** future.

Earnin

$5.3B

in net sales

Valuing

12,800+

employees

~1000

patents + pending applications

Partnering with

93,000

Body Shops

Product sold in

140+

countries

520+

trademarks

24

prestigious R&D awards since 2021

4

major R&D Centers

Supply the

Top 10

OEM Manufacturers

1,300+

Scientists, engineers and technical experts

AXALTA

IMPRESSIVE HISTORY OF INNOVATION

AXALTA

Milestones

1860s
Spies Hecker and Standox companies started in Germany

1920s
DuPont launched Duco—first sprayable coating

1930s
First mixing machine

1950s
Color explosion

1970s
First automated color measurement: spectrophotometer

1980s
First automotive waterborne coating

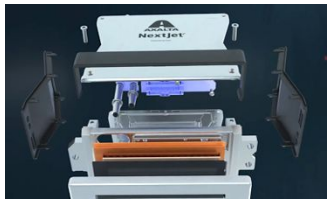
2000s
Introduced resin technology that enabled wet-on-wet application

2010s


Acquire Plus EFX™ color and flake characteristics for digital color matching

Unrivaled pre-finished siding technology for building products market

2020s
Digital revolution



NextJet™ digital paint application

Axalta Irus Mix first fully-automated mix machine

Exciting Future Ahead

AXALTA

OUR APPROACH

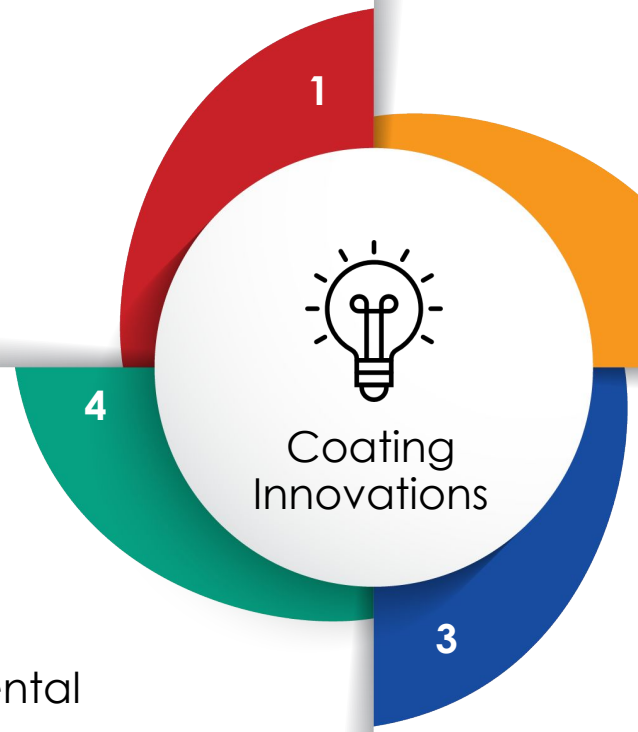
Color & Surface Aesthetics

Innovations that make things more beautiful or return them to the original state

Performance

Innovations that offer greater protection and enhance durability

Innovations that enable electrification



Sustainability

Innovations that reduce the environmental impact of the product itself or its use.

Productivity

Innovations that improve efficiency or reduce the amount of input needed for the same result

1 COLOR AND AESTHETICS

Innovations that make things more beautiful or return them to the original state

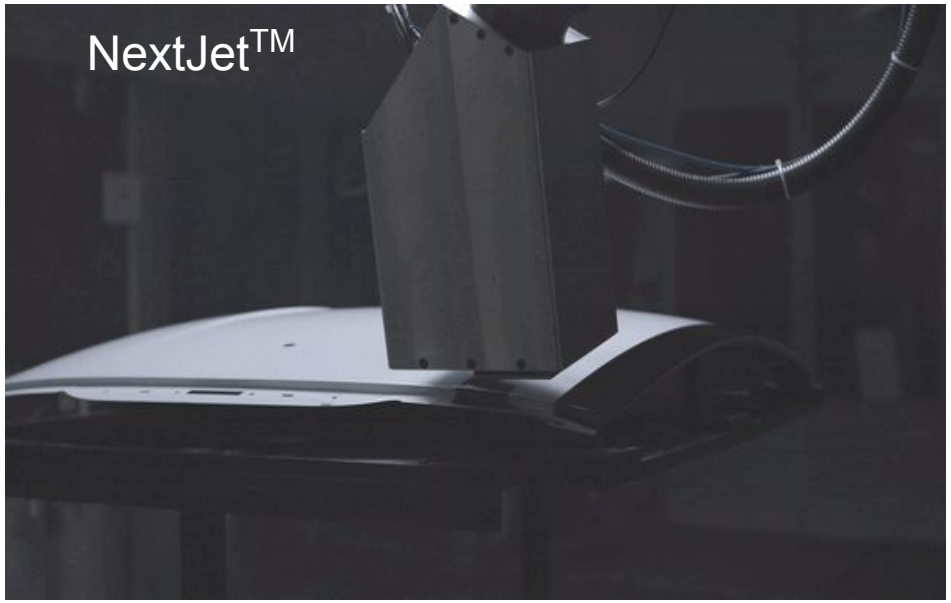
- Customization drives innovative ways to individualize products cost-effectively

- Measuring and recreating color and aesthetics

1 COLOR AND AESTHETICS

NextJet™: New Paint Application Technology Supporting Mass Customization

- Digital paints using ink jet printing technology
- Drop-on-demand: paint goes only where we want it to go
- Tutone and Graphics capability- eliminates masking and waste in paint shop
- 100% transfer efficiency reduces material consumption



1 COLOR AND AESTHETICS

Irus Scan: Accurate Color Measurement

- Industry-leading digital color measurement technology
- Measures colored sparkle, hue-shifting, effect pigments, and gloss in automotive coatings
- Improves color match accuracy by up to 25%
- Eliminates sample spray out which reduces VOC emissions and carbon footprint

2 PERFORMANCE

Innovations that offer greater protection, durability and enhance functionality

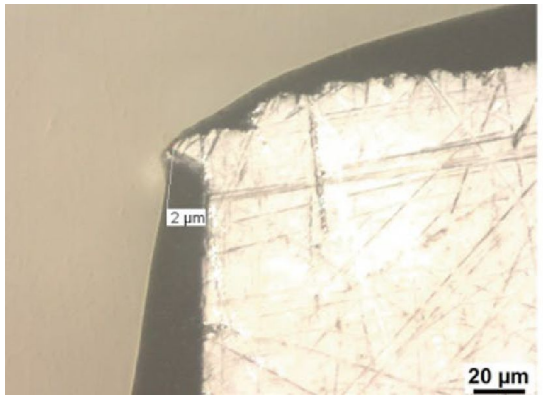
- Improved durability and corrosion resistance lengthen product life

- Electrification is well under way, creating demand for new kinds of coatings that not only protect, but enhance performance

2 PERFORMANCE

Advanced electrocoatings improve corrosion resistance, extend vehicle longevity

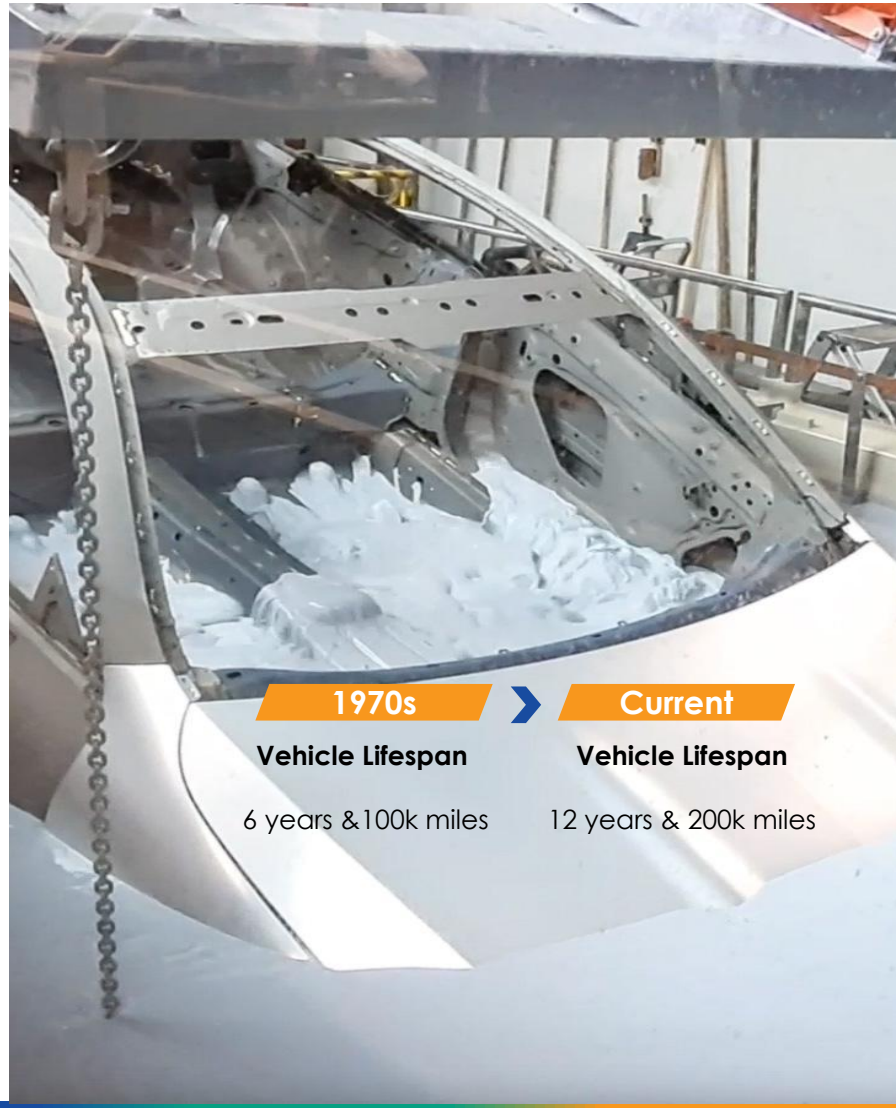
Improved edge protection from new generations of E-coats



CURRENT TECHNOLOGY

NEW TECHNOLOGY

Broad-bake technology enables auto OEMs to co-produce electric vehicles and standard combustion vehicles on the same manufacturing line, saving time and increasing productivity



2 PERFORMANCE

Coating solutions driving electrification through increased functionality

Alesta® e-PRO FG Black

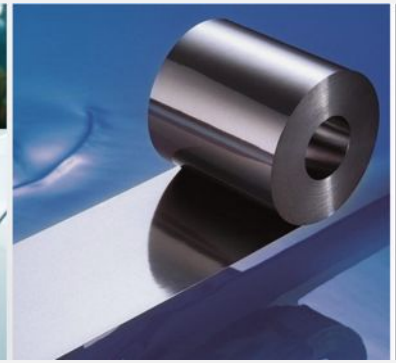
Flame and heat-resistant, zero VOC powder coating protects EV battery enclosures from thermal runaways, improving overall passenger safety



Voltatex® 1255

Electrical Steel Coating for Dot Bonding Process

- Enhanced corrosion resistance
- High speed punchability
- High thermal stability
- Annealing resistant
- Formaldehyde-free


3 PRODUCTIVITY

Innovations that improve operational efficiency

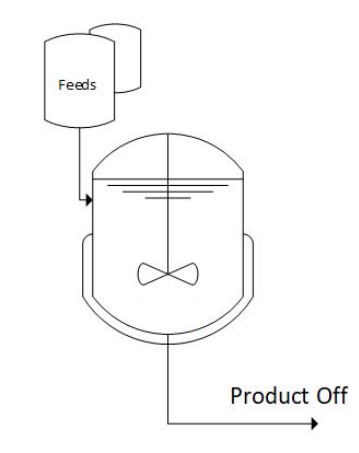
- Optimization of coating manufacturing processes that drive operational efficiency and reduce environmental impact

- Productivity of customer processes to improve efficiency of coating application

3 PRODUCTIVITY

Innovations driving productivity in liquid paint factories

Resin Production



- Reactor designs (hybrids, CSTR) that support more productive and flexible resin processing
- Cycle time optimization

Dispersion

- High energy milling
- Continuous milling processes

Paint Mixing

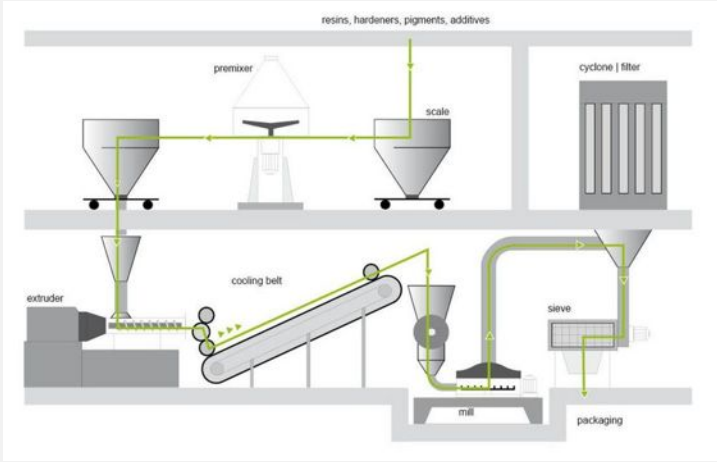
- Automated materials handling improves cycle time, minimizes waste
- AI-driven formula adjustments (TintMaster AI)

3 PRODUCTIVITY

Innovations driving productivity in powder paint factories

Raw Material Pre-blending

- Automated material handling improves cycle time, eliminate waste and errors (silos, micro dosing)
- Color AI and robotic spray application for adjustments



Extrusion and Milling

- Advanced data acquisition systems for improved machine controls
- Intelligent screw designs for higher throughput

3 PRODUCTIVITY

TintMaster AI: Dynamic Batch-Cards using Artificial Intelligence

TRADITIONAL PROCESS

Raw Materials

Recipe
Dispersion A
Dispersion B
Dispersion C
Resins
Solvents
Additives

Paint Batch

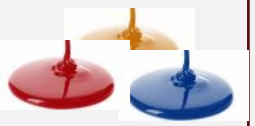
Color Correction Steps

Test Adjust Test Adjust ...

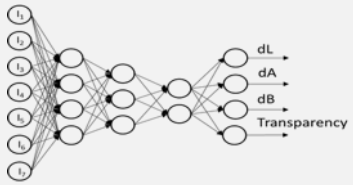
NEW PROCESS

Recipe
Dispersion A
Dispersion B
Dispersion C
Resins
Solvents
Additives

Dispersion Color Data



TintMaster AI



New Recipe
Dispersion A
Dispersion B
Dispersion C
Resins
Solvents
Additives

Raw Materials

Paint Batch

3 PRODUCTIVITY

Axalta Irus Mix : Fully automated mix machine

Boosts body shop capacity:

Ultra-fast, fully-automated system allows painters to multi-task

Precise dosing accurately mixes color, eliminates rework

Improvement in loading accuracy of >25% leads to reduction in use of at least 10%

Axalta's bottle system is made of up to 50% recycled plastic

3 PRODUCTIVITY

Spies Hecker® Speed-TEC Fast Cure, Low Energy System improves productivity of bodyshops

- Fastest curing, most energy-efficient collision repair paint system
  - Cut cycle time by up to 50%
  - Reduce energy consumption by up to 49%

- Versatile and Streamlined
  - Suitable for air-dry and low-bake processes on metal and plastics, in sanding or wet-on-wet application

4 SUSTAINABILITY

Innovations that reduce the environmental impact of the product itself or its use

- Innovating for sustainability is an "AND" not "OR."

- Value proposition "AND" sustainable advantage

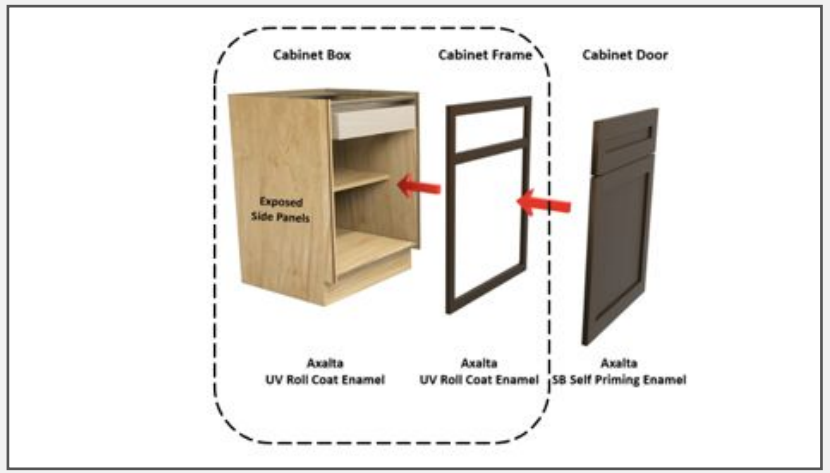
4 SUSTAINABILITY

Innovations driving sustainability

Spies Hecker® Full Waterborne Repair System

Collision Repair System where all coating layers are waterborne

- Primer-Surfacer, Sealer, Basecoat, Clearcoat
- Best-in-class appearance while reducing solvent emissions by up to 60%
- Faster cycle times and improved performance versus older solventborne technologies



UV-Cured Cabinet Face Frame Coatings

- Superior coating aesthetics over rough and porous edges
- 100% non-volatile UV-cured
- Example of sustainability with performance and aesthetics

4 SUSTAINABILITY

Removing Materials of Concern, Use of Bio-based and Recycled Components

Voltatex® ECO Line Wire Enamel

Removal of cresol to improve safety profile of electrical wire enamel

- Cresol provides excellent solubility and cure properties but is highly corrosive & toxic
- Developed cresol-free product by modifying resin technology
- Improved application efficiency without sacrificing final product performance

Alesta® BioCore

Powder Coating Using Bio-based Components

- Polyester bio-resins, waste-based renewable raw materials
- 25% lower CO_2 emissions (embodied carbon)
- ISCC+ Certified, LEED Impact
- Equivalent performance, finish, quality and certification

What's the Future

ACCELERATE…

to better performance

- ☑ More Waterborne Technology
- ☑ Low Temperature Cure
- ☑ Less Hazardous Materials
- ☑ Increase Recycled/Bio-Based Content
- ☑ High Performance Manufacturing Processes
- ☑ Further implementation of AI

Thank you.