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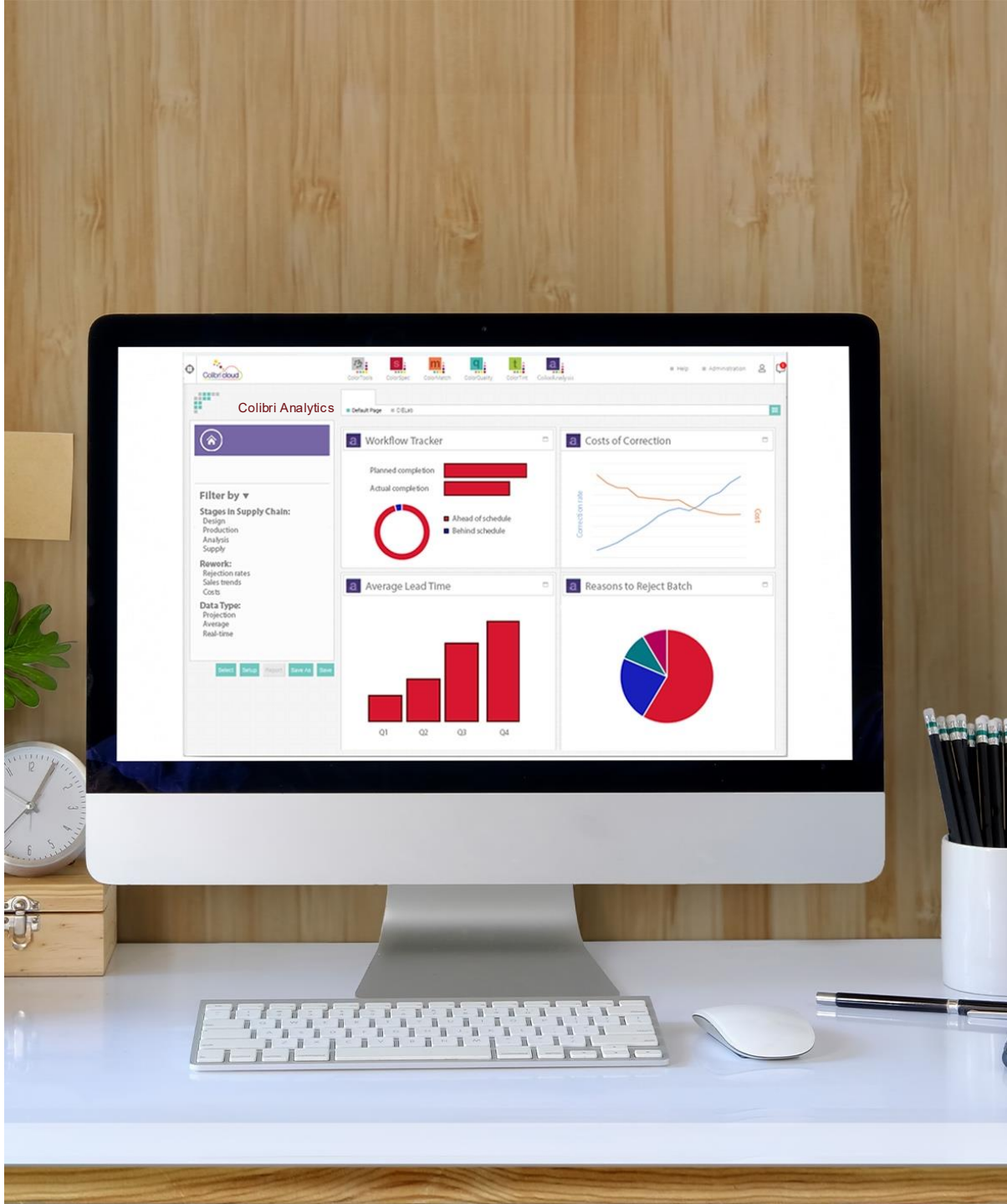
Unlocking the Full Potential of Digital Color Management in Wood Coatings

PITTURE E VERNICI Conference

28-29 October 2026 | Allianz MICo Milano



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In wood coatings color is chaos disguised as craft

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A Better Way to Manage Color

Consistent, objective color — measured, managed, and communicated across your entire supply chain.



Global reach, local support

Worldwide presence backed by local service teams, so expert color support is always close to your operation.



Industries we serve

Paint & coatings, textiles, plastics and automotive — plus paper, ink, print & packaging.



End-to-end color solutions

Measurement hardware, formulation & QC software, application support and training across your supply chain.

Color and Appearance

Appearance = Color + Gloss and Texture



Color is what the material is. Appearance is how the material looks

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Wood Coatings Are One of the Toughest Color Challenges



- Natural substrate variability
- Grain differences
- Porosity differences
- Absorption differences
- Moisture effects
- Transparent and opaque systems

Open pore stains - Matt coatings - Satin finishes - Brushed woods

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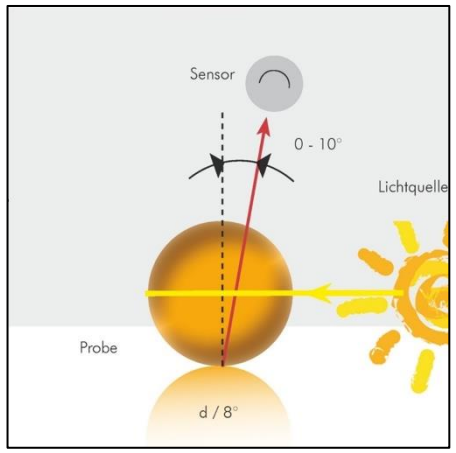
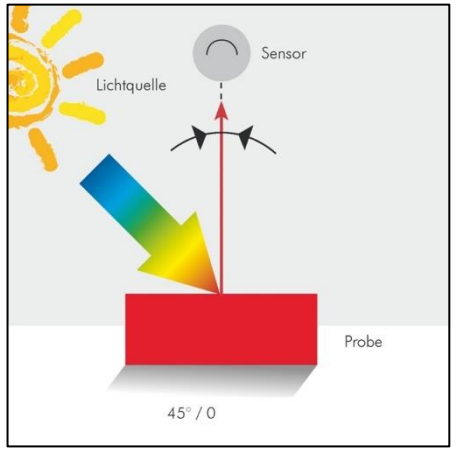
Measurement Geometries





d8 Measurement Geometry.

- Captures the color
- Reduces the influence of surface gloss and texture, providing more stable color measurements
- Commonly used for digital color communication and color matching

45/0 or 0/45 Measurement Geometry.

- Simulates Human Vision
- Sensitive to surface properties like gloss and texture, ideal for applications where the appearance of the sample, including gloss and texture, is important
- Commonly used for quality control and final inspection

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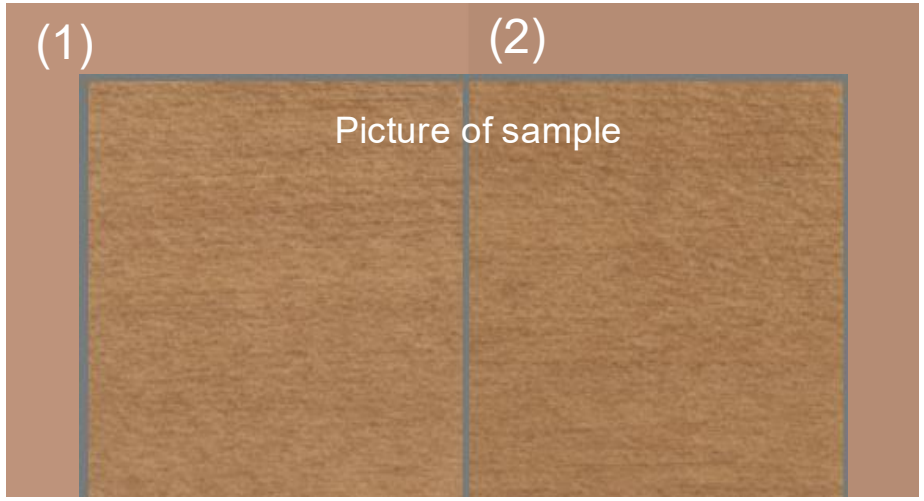
Measurement challenges

Camera-based Instrument Vs Conventional instrument



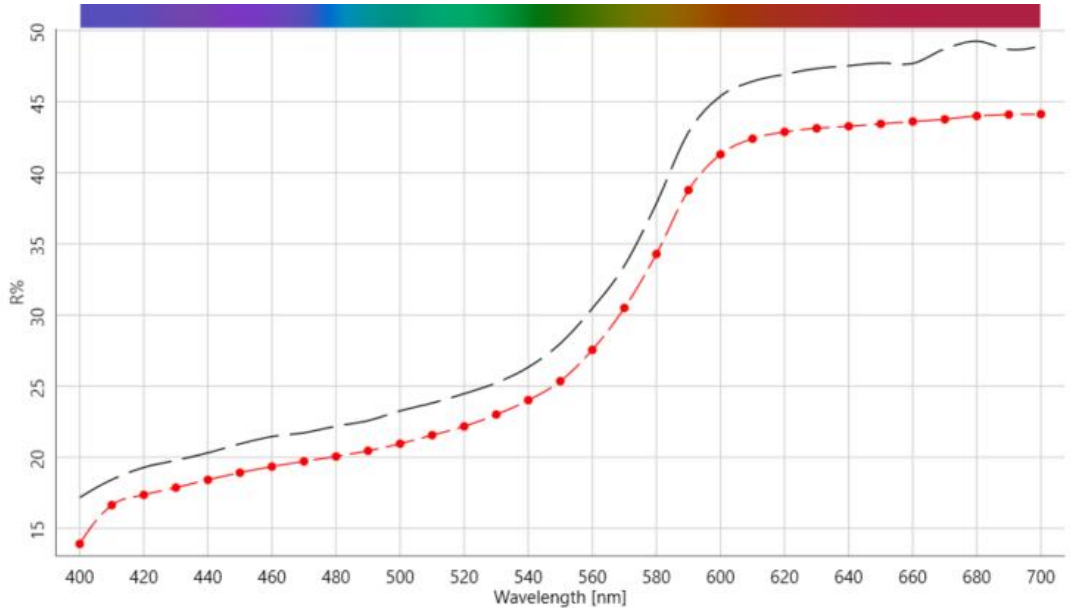
Color Difference CIE DE = 2.56

Lightness Difference DL = -2.50

Hue Difference Dh = 0.06

When measuring a wood sample with a sphere-based instrument, approximately 10% of the light is lost, depending on the structure of the sample.

When measuring a wood sample with a sphere-based conventional spectrophotometer (2) (Datacolor 700 Specular Included measurement), we can see that the reading is darker compared to a measurement with a sphere-based, camera-based instrument (1) (Datacolor Spectravision d8 Specular Included measurement)



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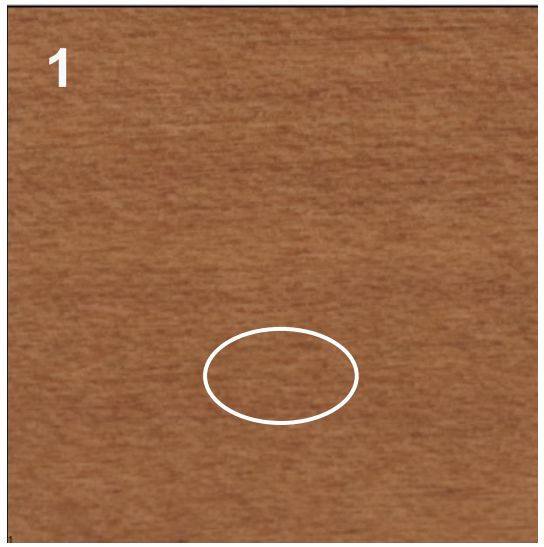
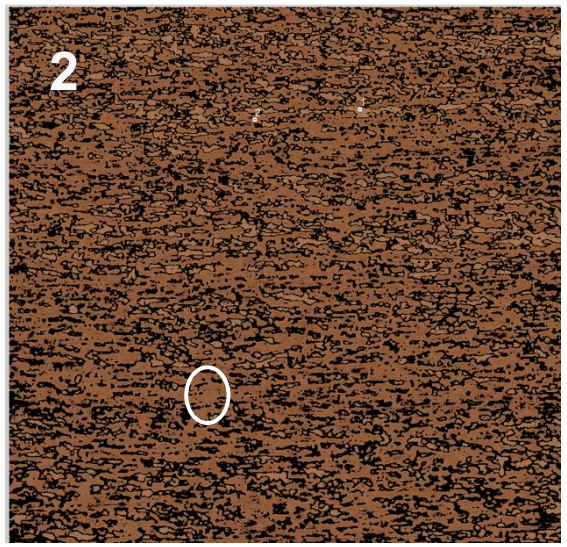
Measurement challenges Wood Coating Paint



Composed image of Camera-based Instrument (Datacolor Spectravision SCI)

%R curve for every pixel



Manually selected an area without shadow, we consider this the true color of the wood sample

When manually selecting the area without shadows the difference becomes bigger

Manually selected area (3), the color we want to match	Composed Image (1)	Conventional Spectro (2)

Color Difference between (2) and (1) CIE DE = 5.71

Lightness Difference DL = -5.62

Hue Difference Dh = -0.04

When measuring a wood sample with a conventional instrument, approximately 20% of the light is lost, depending on the structure of the sample.

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Measuring Wood Coatings – Guidelines

- Use d8 Sphere based instruments and measure SCI, we want to capture and match the color of the sample
- Measure samples in different positions and average the readings
- Use multiple samples and colors to define the % loss of light for each kind of coating or use a camera-based d8 instrument like the Datacolor Spectravision.
- Once we know the % loss of light, match the color with the adjusted reflectance curve, use software features like Offset matching.



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SpectraVision



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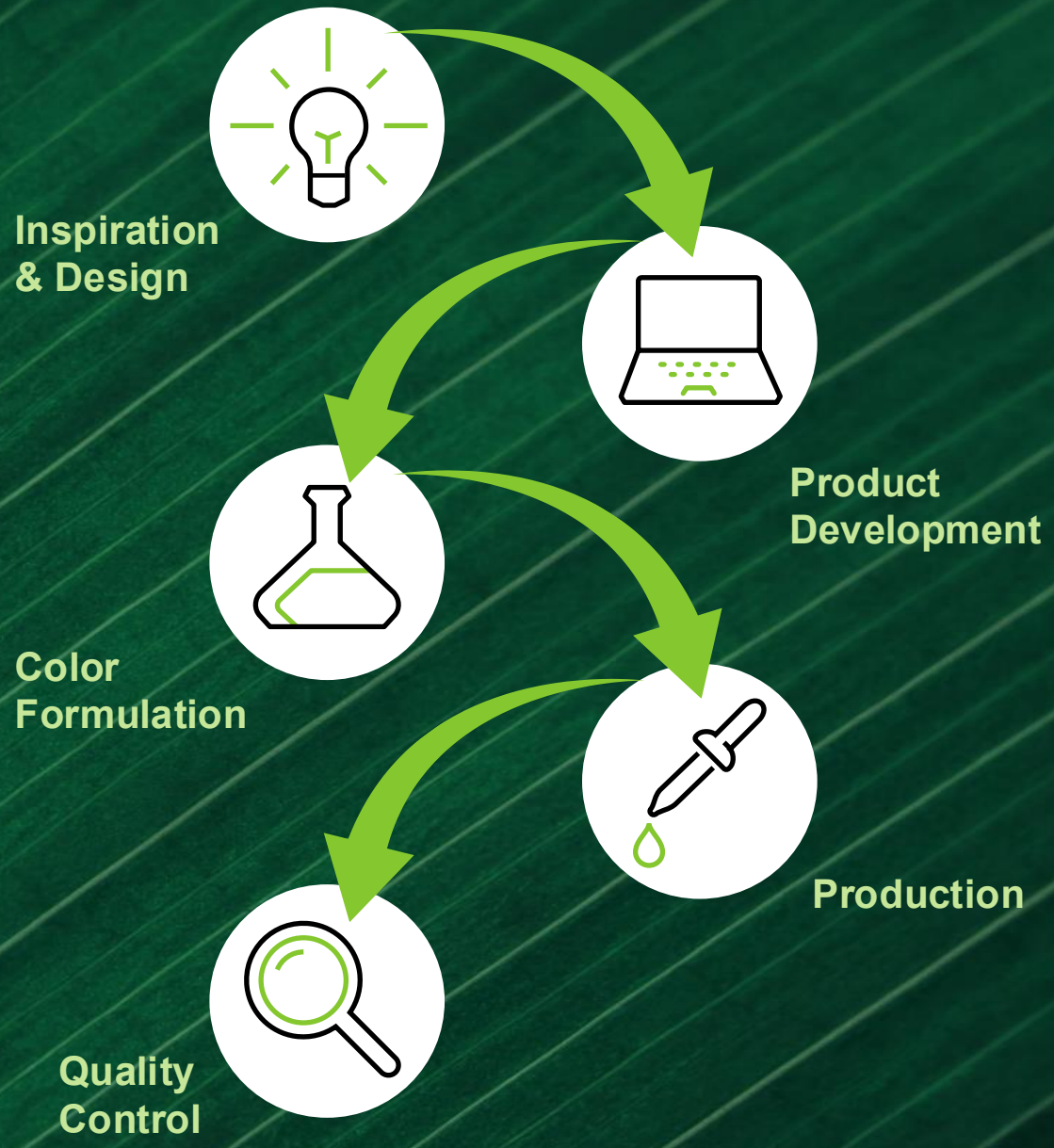
Spectravision Savings Calculator

The Color Piece of the Sustainability Puzzle

Reduce the global impact of your brand at each stage of production without compromising on speed or quality and without incurring additional costs

Optimize your recipes to include the most sustainable ingredients

And even if mistakes do happen, digital color tools can help make the most of off-color materials by re-using or re-formulating the materials that are incorrect or simply left over after a job.



First-Shot Accuracy & Formulation Agility

Getting color right the first time — and keeping it right when materials change.



First-Shot Accuracy

- Advanced measurement paired with self-learning algorithms improves right-first-time results.
- Systems learn from every match, continually refining future color predictions.
- Fewer costly re-works and less material waste — more sustainable, efficient production.



Formulation Agility

- Recipes recalibrate automatically when raw materials or pigments change.
- Color accuracy is maintained despite supply variability and reformulations.
- Production stays on schedule and customer specifications are consistently met.



How a Color Management System Improves Your Sustainability

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Achieve Consistency

Less corrections, improved color matching

Save Time

Faster production time, less end-waste

Leverage Data

Improvements for future productions, streamline difficult colors

Communicate Effectively

Consistent color data and tolerances across sites, no physical shipments

Key Takeaways

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1

Wood is uniquely hard to color-match

Variable grain, porosity, absorption and moisture make consistent color and finish a moving target — for both transparent stains and opaque coatings.

2

Measure it the right way

Use d8 sphere / SCI geometry (or a camera-based instrument like Spectravision) and correct for the light lost to surface structure.

3

Get the color right the first time

Self-learning color tools improve first-shot accuracy, cutting corrections, rework and material waste.

4

Stay agile and sustainable

Recipes adapt fast to raw-material changes while color stays on spec and consistent across every site.



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Get Color Right