Transparent Iron Oxides in Wood Coatings

Color without hiding the wood. UV protection without sacrificing transparency

Colormax New Materials (Huzhou) Co., Ltd.

Presented by **ORIGO srl**

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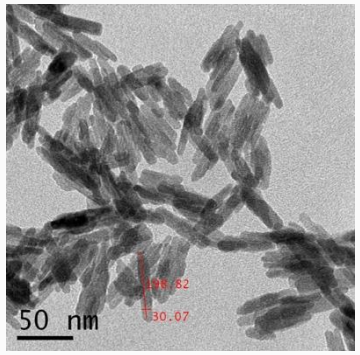
Key benefits of Transparent Iron Oxides



Particle size

From **10-90 nm**
vs 100-1000 nm for conventional iron oxides

This strongly **reduces visible-light scattering**, providing color while creating the transparency that characterizes them

UV absorption

Transparent iron oxide efficiently absorbs UV radiation, **reducing wood degradation**

Natural wood grain preservation

The film remains transparent, keeping the wood pattern visible and **enhancing its natural appearance**



Superior stability vs. organic pigments

Better resistance to fading, migration and bleeding helps **maintain color more effectively over time**

Advantages over the entire lifecycle of the finish



Extend coating life

Better UV protection and weather resistance help **extend the service life** of the finish

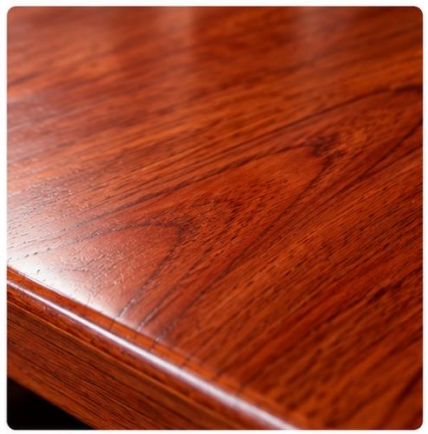
Reduce maintenance frequency

Longer maintenance cycles can **reduce the need for recoating**

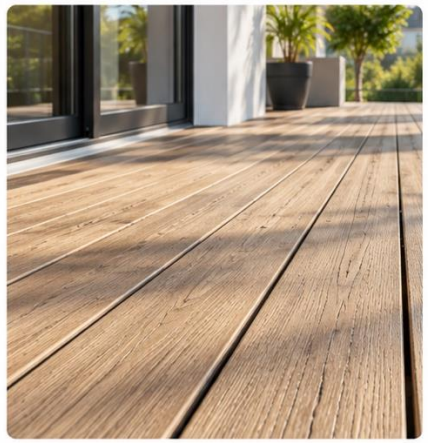
Reduced material consumption and waste

Fewer recoating operations **reduce paint consumption and waste generation** over the coating's lifecycle

Other benefits of Transparent Iron Oxides


Acrylic


Alkyd


PU


Oil / Wax

Broad system compatibility

Compatible with **acrylic, alkyd, polyurethane, oil and wax** systems

Water- and solvent-based use

Suitable for both **water-based** and **solvent-based** wood coatings

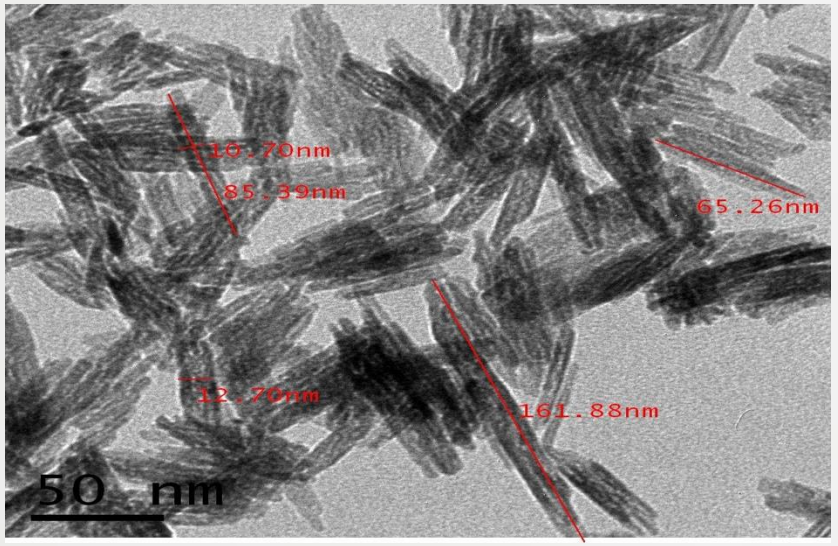
Economic advantage

Generally **lower cost** than organic pigments offering comparable performance

Focus grades: CX618 Red and CX718 Yellow

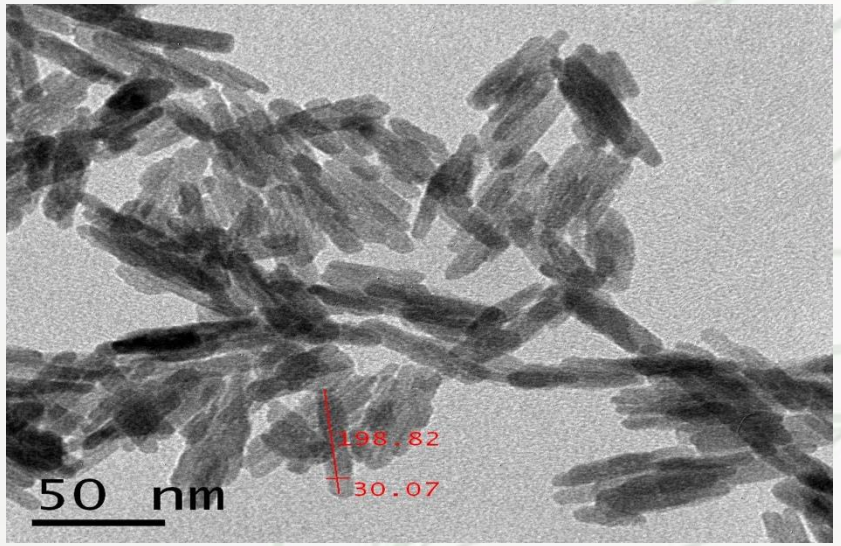
Transparent Red CX618





Transparent Yellow CX718





Powder appearance and TEM morphology

Technical advantages of Colormax



High specific surface area

- CX618 Red: 120–130 m²/g
- CX718 Yellow: 80–90 m²/g
- In some cases above market benchmarks



What it means in practice

- **More effective particle-to-matrix contact**
- **Higher UV-absorption efficiency**
- **Higher tinting strength**
- **Dosage reduction for equivalent performance**



Formulation note

- High surface area may require careful dispersion optimization
- Colormax provides technical support during product evaluation

Supporting evidence: UV absorption and weathering

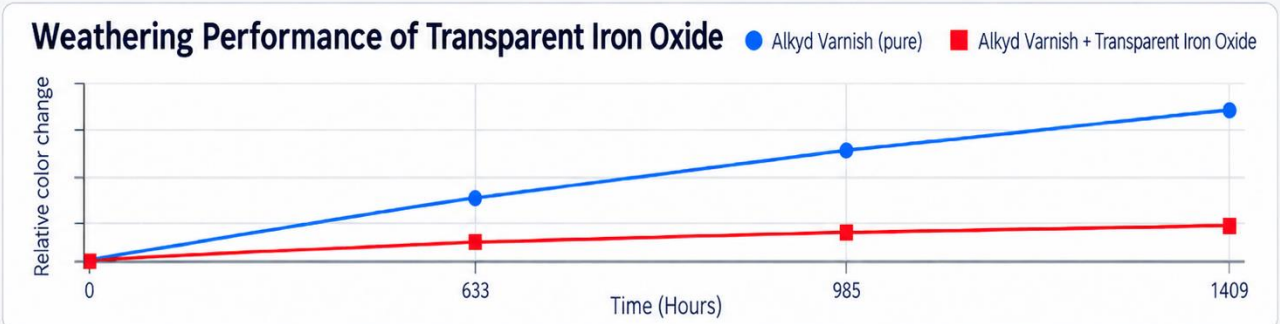
UV absorption

Compared with pure varnish, transparent iron oxide dispersions show **higher absorption**



Weathering performance

Compared with pure varnish, systems containing transparent iron oxide show **better resistance to color change and outdoor degradation**



Transparent Iron Oxide in wood wax oil

Existing challenge

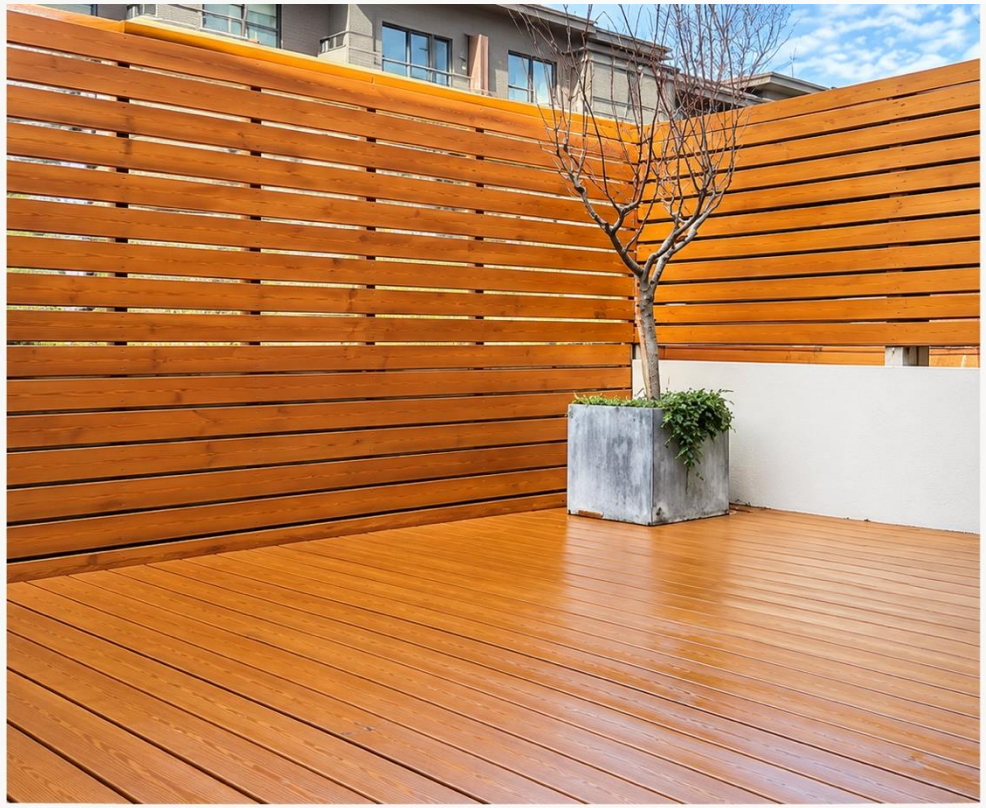
Wood wax oil offers a natural look, but it can show limited UV-aging resistance in outdoor exposure

Tested solution

Addition of 5% transparent iron oxide yellow paste (CX718)

Improved aging performance

Aging level: 3 → **2**
Powdering level: 1 → **0**



Result in practice

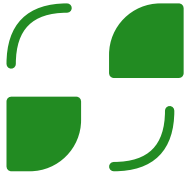
Improved UV-aging resistance while maintaining the natural character of the wood finish.

Environmental aspects of production



Process water recycling

The production site is designed to recycle approximately **50% of process water**



Material recovery and valorization

Several secondary materials are recovered and valorized, helping **reduce waste and improve process efficiency**



Low heavy-metal content & compliance

High-quality raw materials help maintain **very low heavy-metal content.**

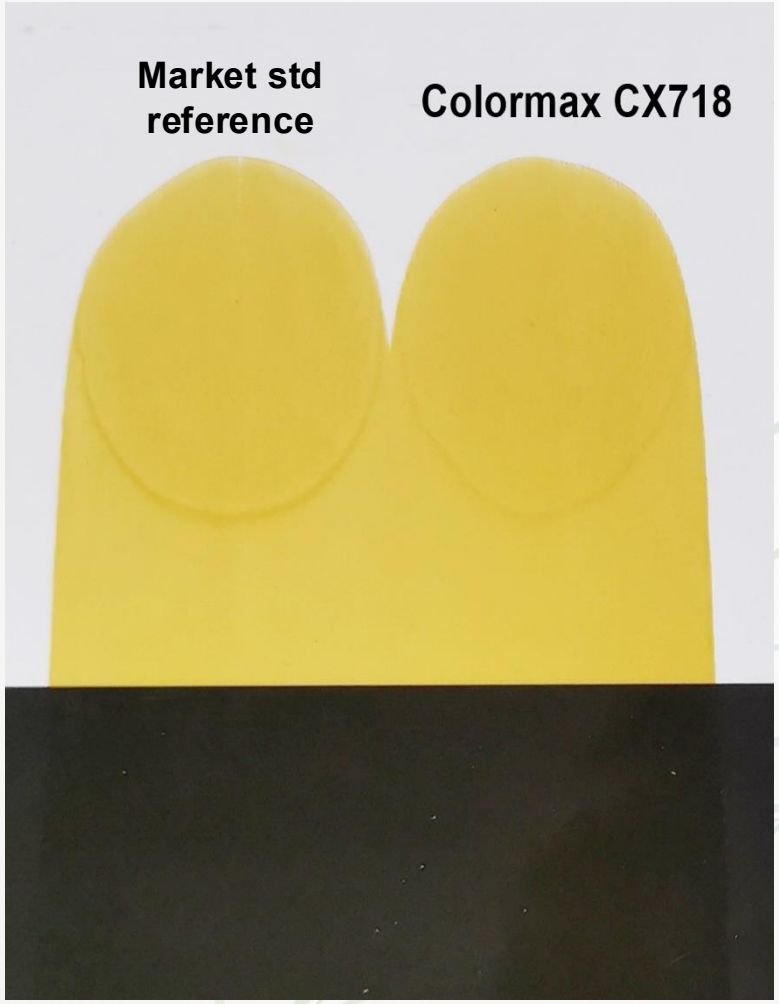
Products are available with **REACH and RoHS compliance**

Matched against established market references

Transparent Red CX618



Transparent Yellow CX718



A technical alternative worth testing

Why evaluate Colormax?

- Competitive pricing with comparable or better performance
- Grades matched to established market references
- High specific surface area and efficient UV protection
- Strong tinting strength and clear wood-grain visibility
- OEM color matching and shade development
- Direct technical support from the producer

From benchmark to validation

1 CURRENT REFERENCE

Start from the benchmark or formulation you already use

↓

2 COLORMAX ALTERNATIVE

Compare shade, technical performance and commercial positioning

↓

3 VALIDTION IN YOUR FORMULATION

Test under your conditions, with direct producer support

TEST • COMPARE • DECIDE

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