

DORVALIT® WSP

Wood Stain Protection Technology

**The innovative filler for wood coatings
which retain their attractive appearance**

Ugo Mantellino - UNIVAR

Market Expectations

- > **Perfect wood finishes**
- > **Durable furniture and interior decoration**
- > **Homes and furnishings retain their value**

▶ **Innovative products from Dorfner can do just that**

Challenges with Wood Coatings

1st coat



2nd coat



3rd coat



Discoloration is a common problem with coatings

Discoloration shows through

Applying another coat over the discoloration is futile

► **Discoloration is caused by wood extractives**

Contents

Chapter 1:

Wood Extractives and Coating Degradation

Chapter 2:

DORVALIT® WSP – Wood Stain Protection Technology

Chapter 3:

Practical Examples and Comparisons

Chapter 4:

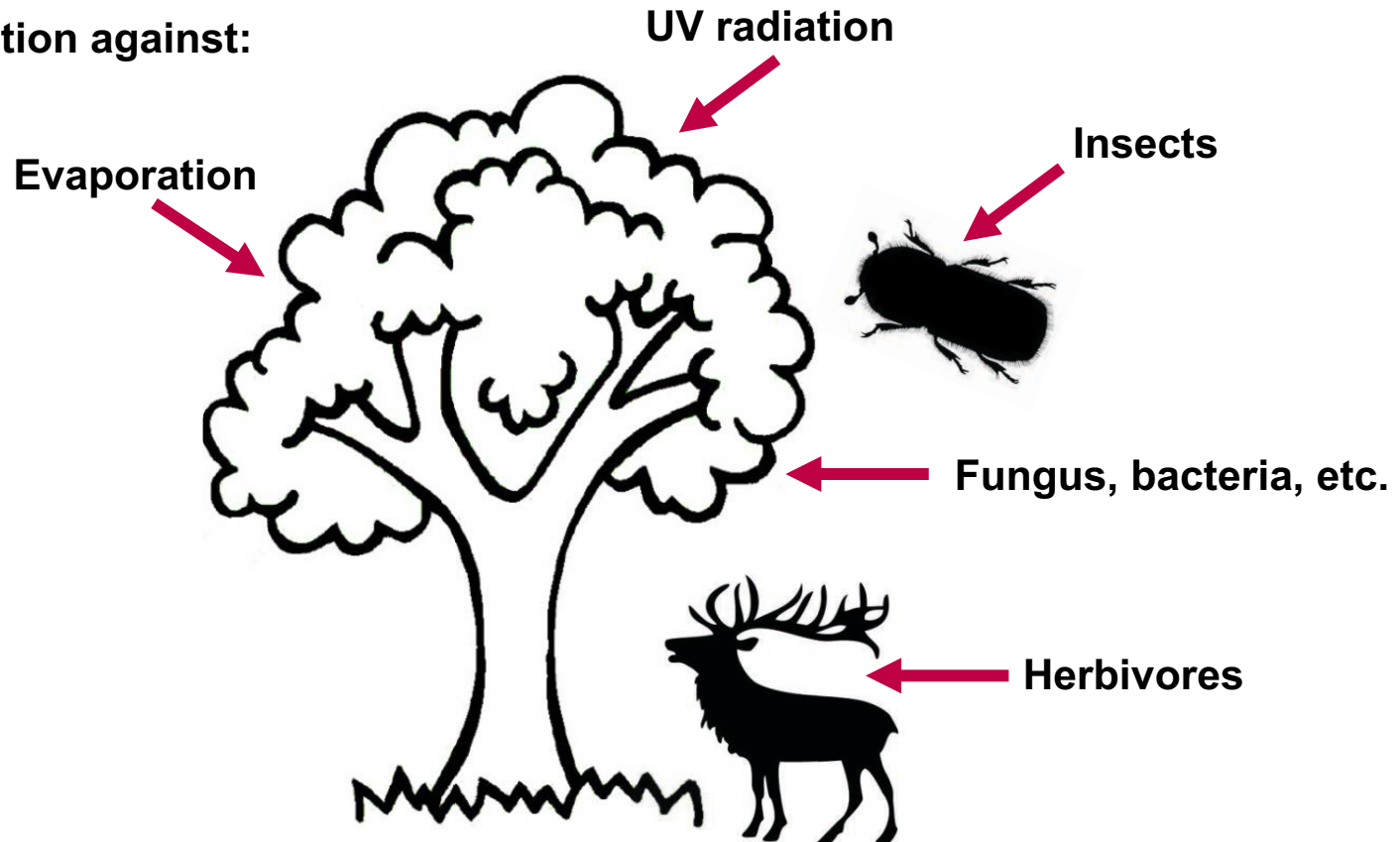
Customer benefits

Chapter 1

Wood Extractives and Coating Degradation

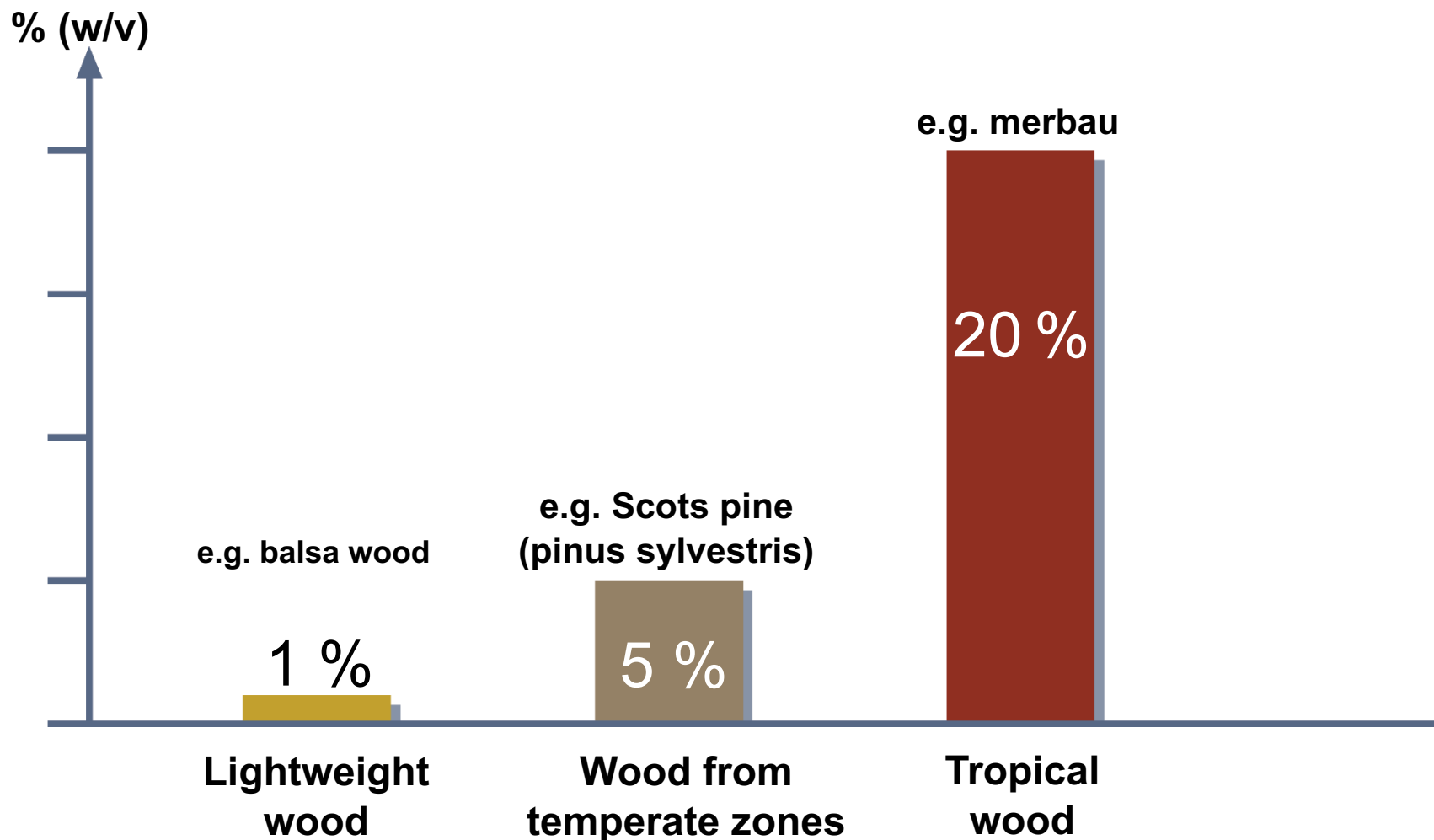
Wood Extractives in Nature

Protection against:



► Wood extractives protect trees and tree wood

Wood Extractives Content

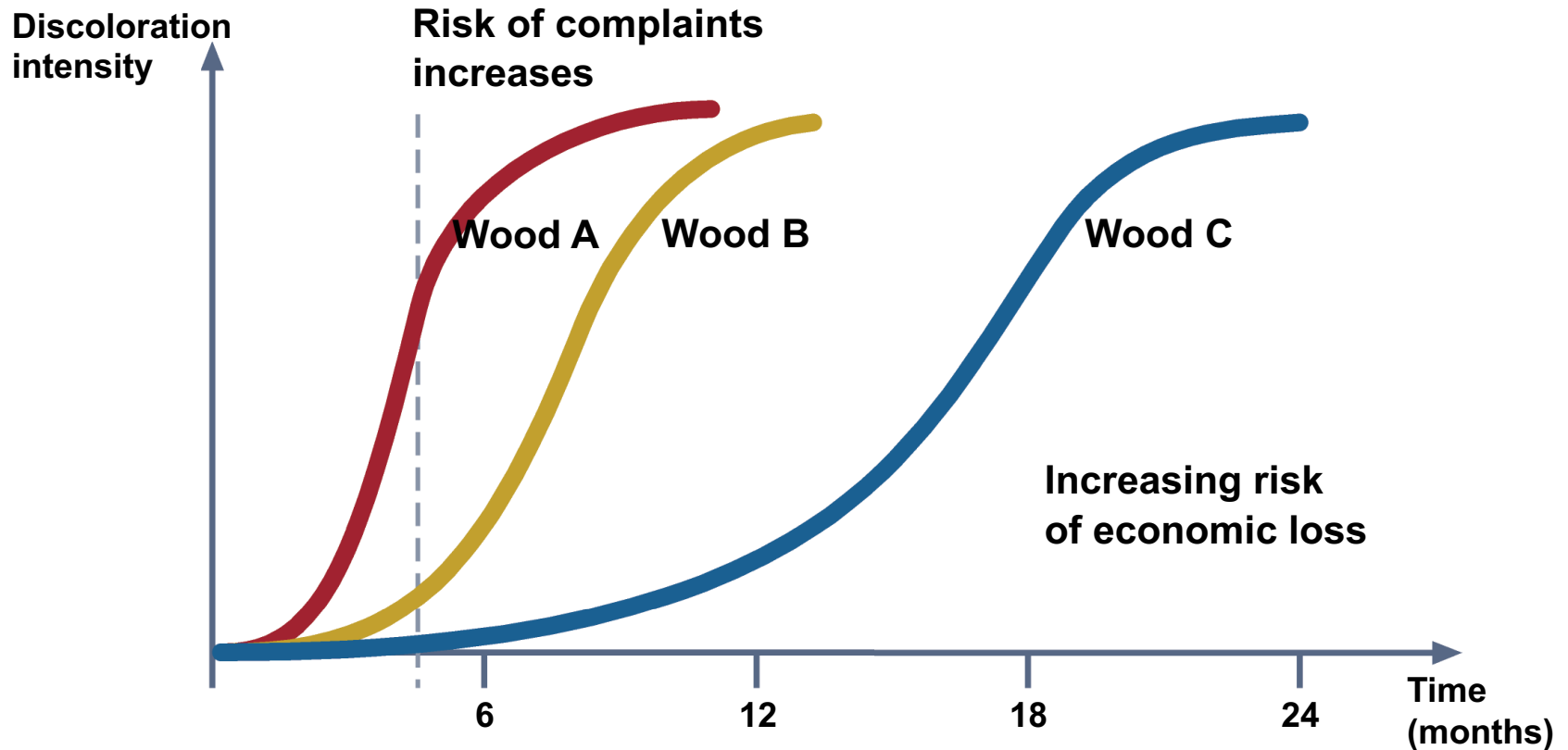


Defect Profile



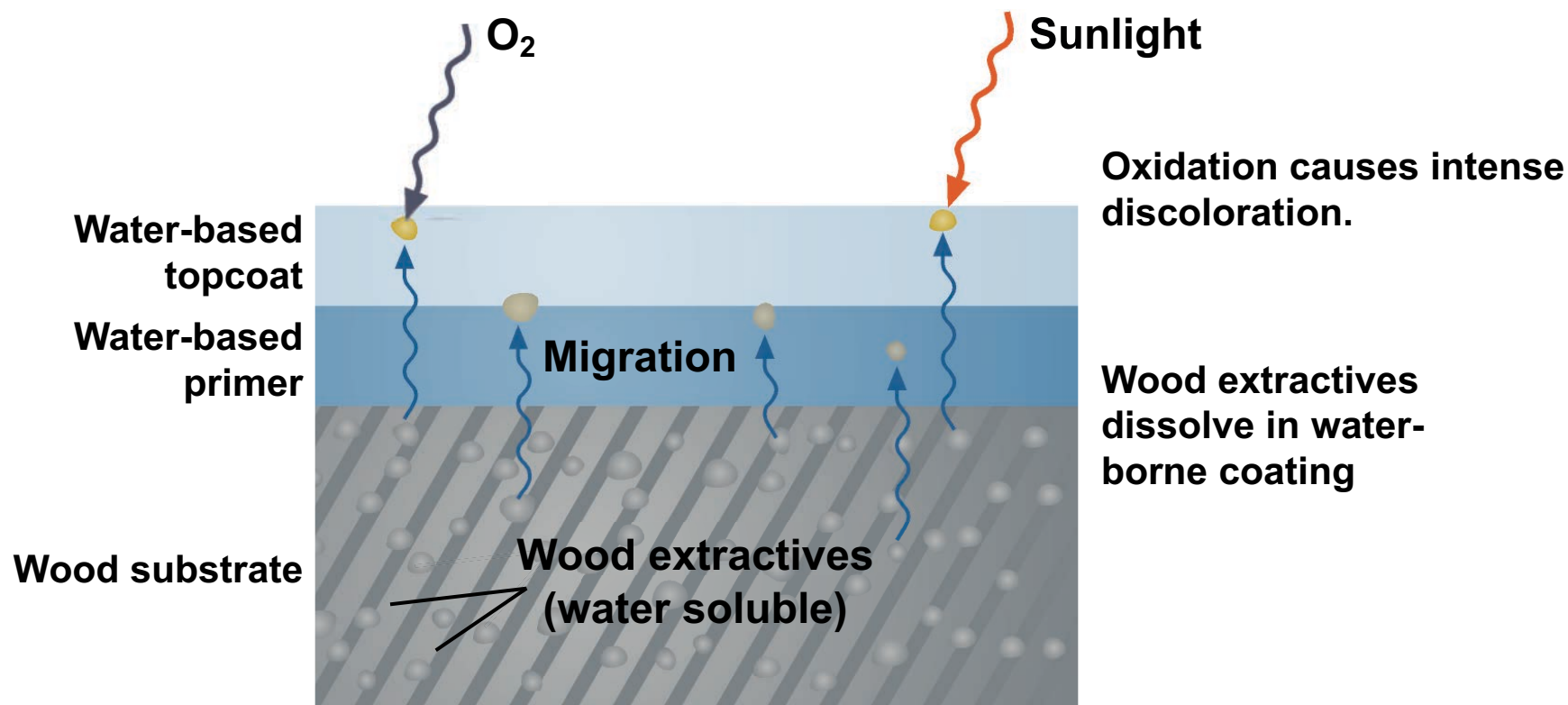
- ▶ **Without added protection, topcoats on wood are susceptible to discoloration**

Discoloration Timeline



- Paint producers need effective barrier primers which are fit for purpose

Discoloration in Wood Coatings



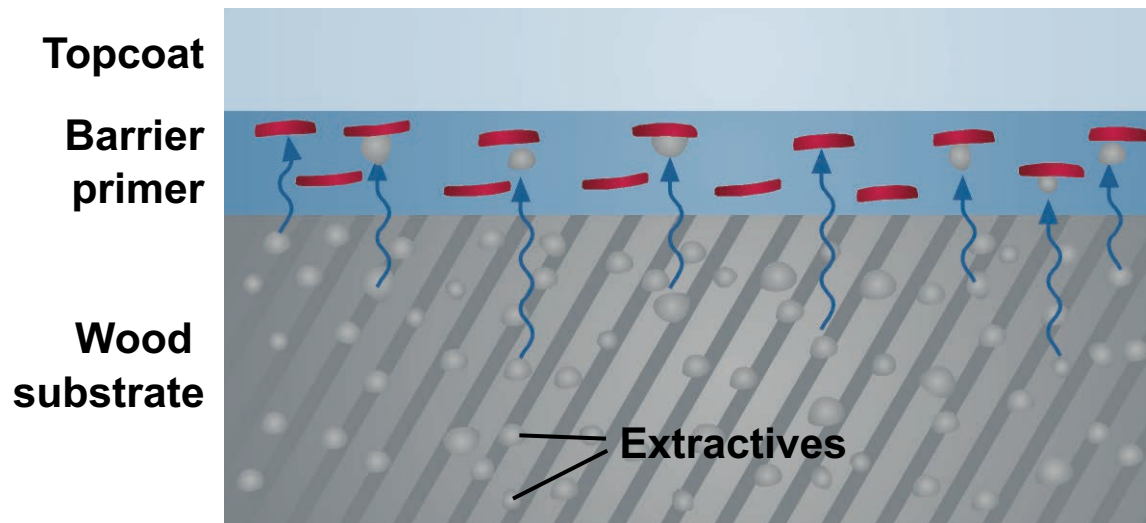
► **Wood extractives and their oxidation products degrade the coatings**

Chapter 2

DORVALIT[®] WSP

Wood Stain Protection Technology

WSP Technology Prevents Discoloration



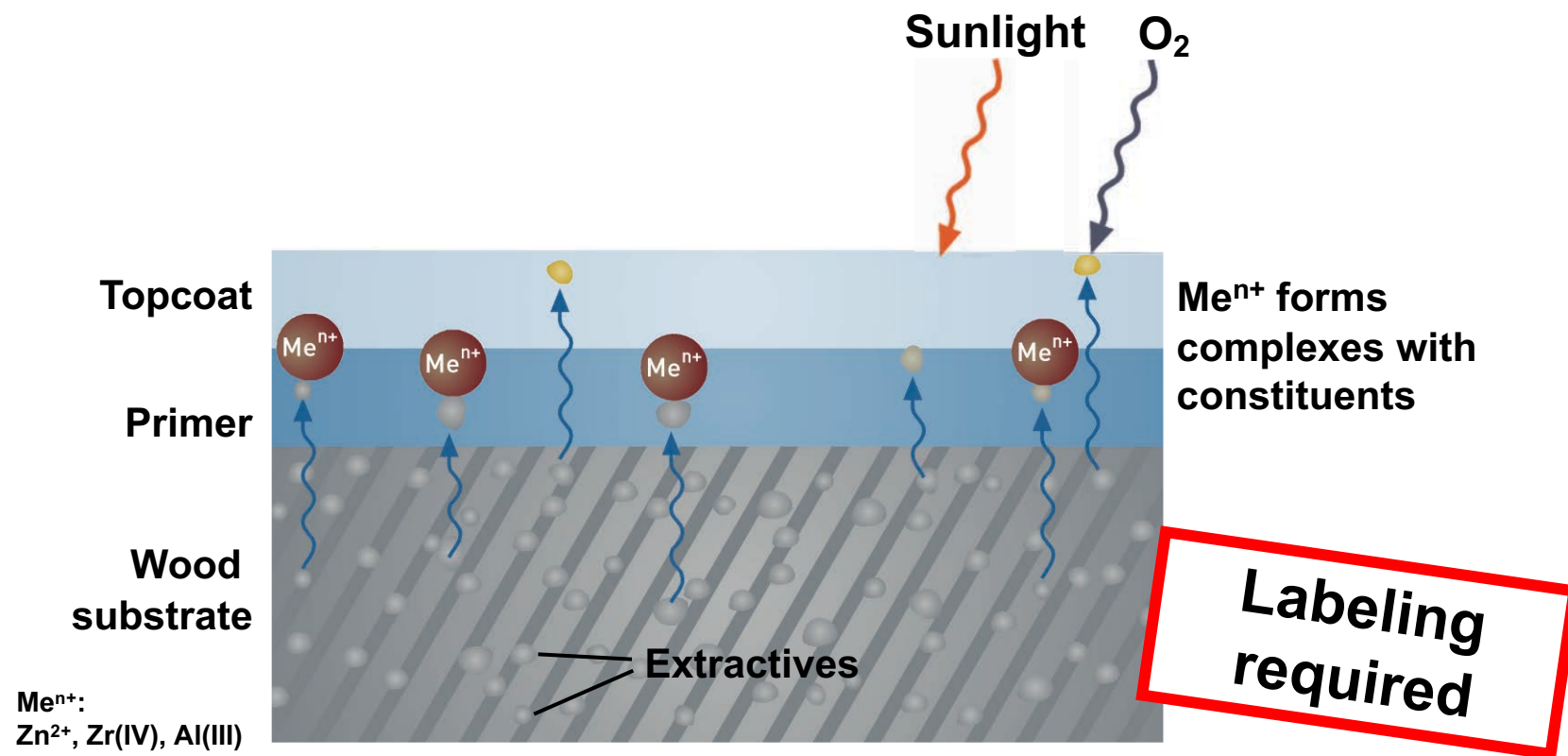
DORVALIT® WSP
Wood Stain Protection
Technology

Extractives are
effectively contained
and do not penetrate
into the topcoat

► **Durable, reliable wood coatings**

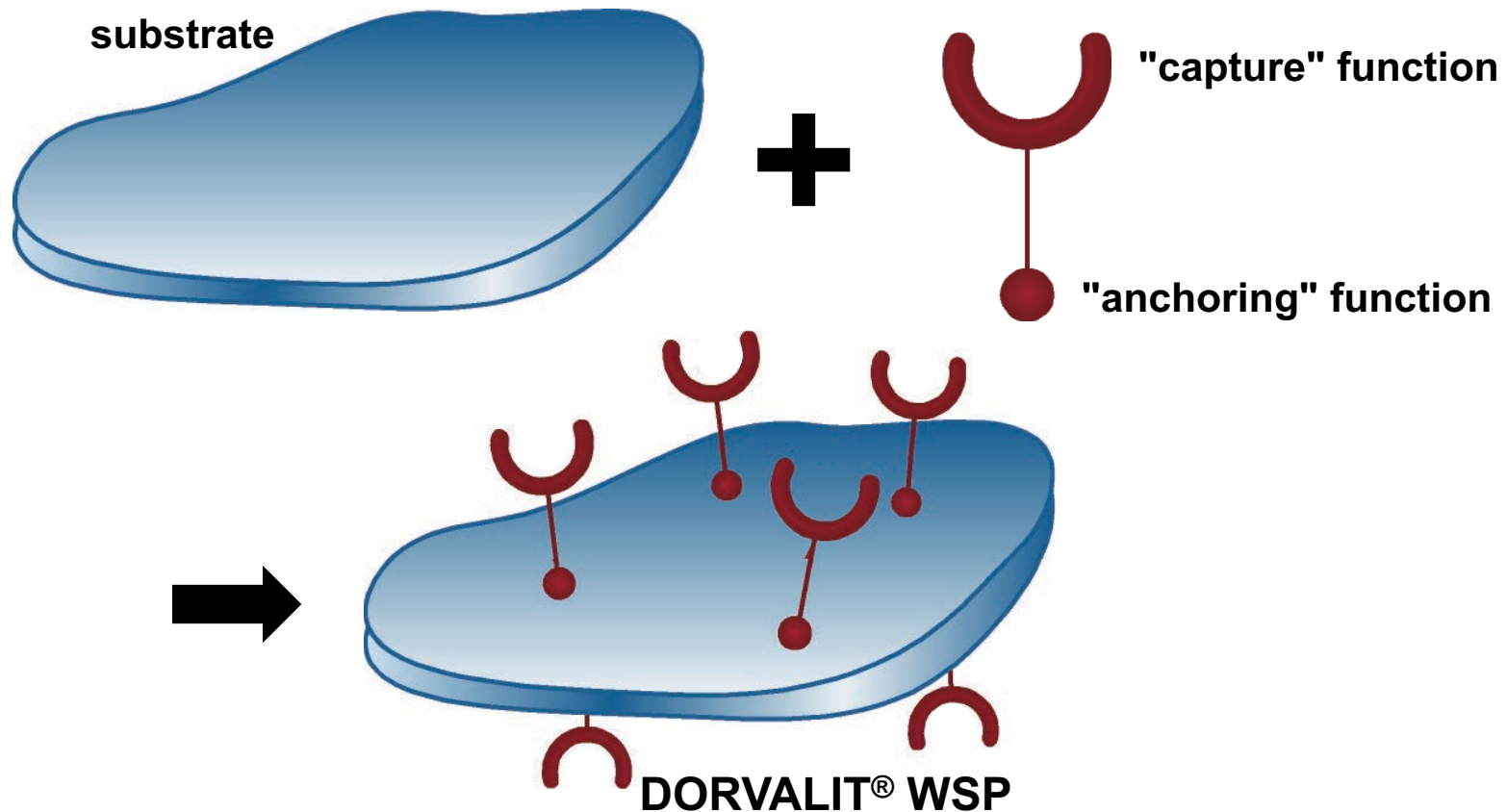
Competing Systems

Organometallic Compounds

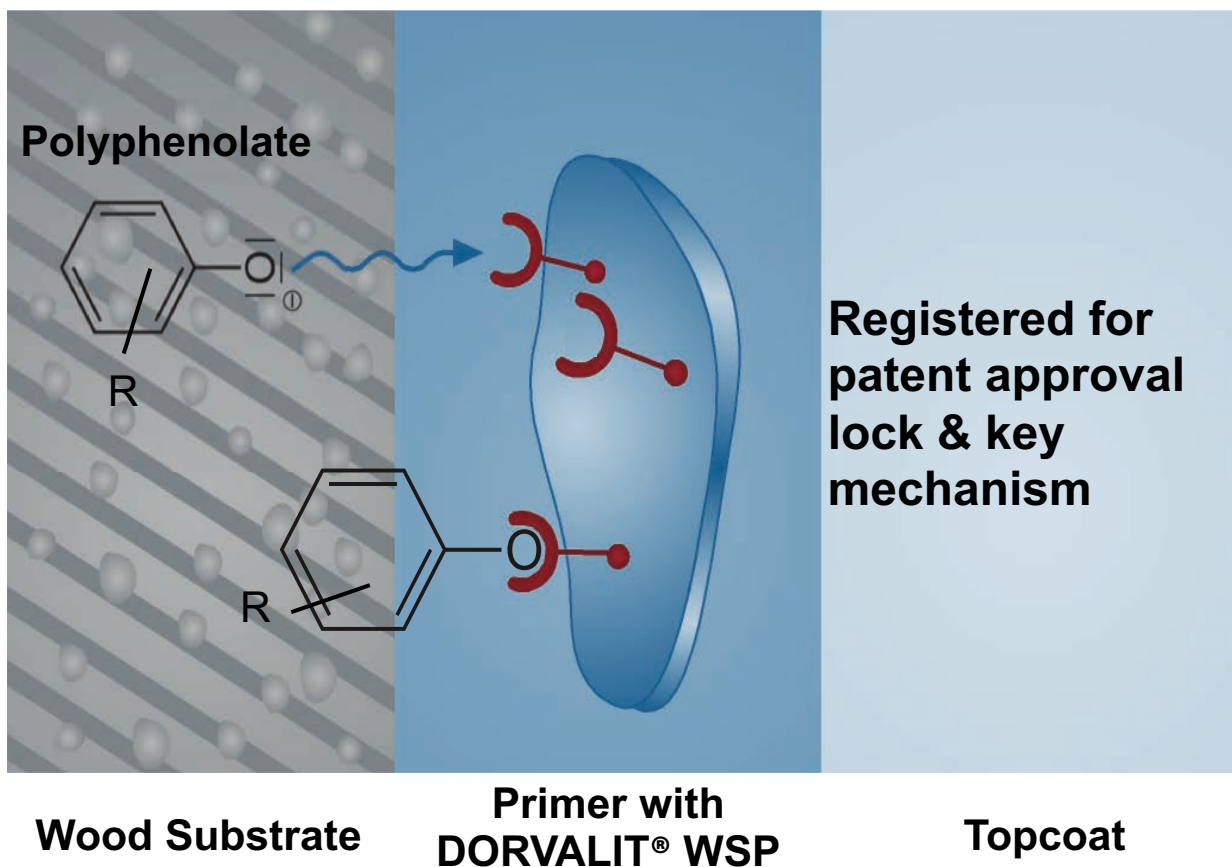


- Organometallic compounds are less effective than DORVALIT® WSP and in most cases require special labeling

Wood Stain Protection Functionality:

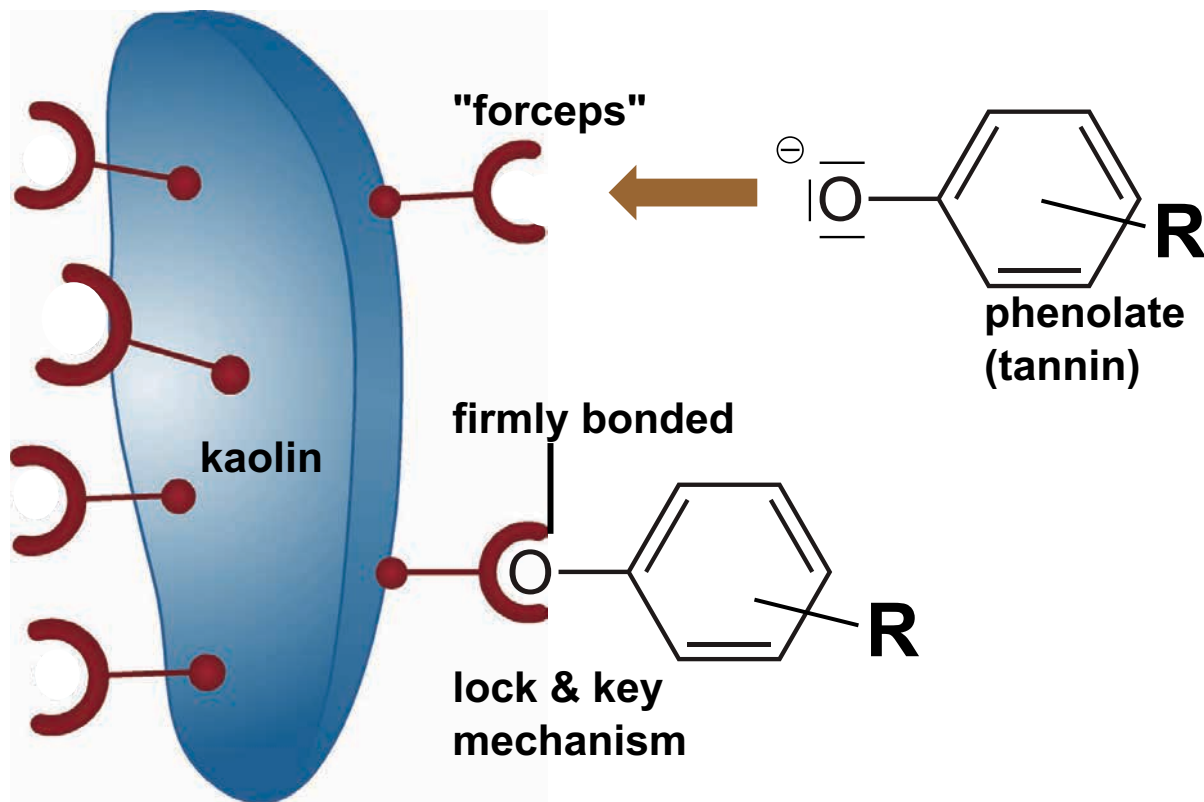


DORVALIT[®] WSP in Action



► Extractives are effectively contained in the barrier primer

Dorfner Wood Stain Protection Technology



- ▶ DORVALIT® WSP captures wood extractives
- ▶ Phenolate is firmly bound and prevented from migrating
- ▶ DORVALIT® WSP has an outstanding barrier effect

System Comparison (1/2)

	Organometallic compound	DORVALIT® WSP
Barrier effect	+	++
Reliability	+	++
Labeling not required	(- -)	++
Eco-friendly	-	++
Long-term effectiveness	- -	++
Cost / benefit	-	++



► DORVALIT® WSP is the clear winner across the board

System Comparison (2/2)

	Organometallic compound	DORVALIT® WSP
Compatibility with binders	- -	++
Compatibility with other formulation constituents	-	++
Formulation flexibility	- -	++
Stability of the formulation	-	++
Complexity of the formulation	- -	++
Handling during production	- -	++

► **DORVALIT® WSP is the clear winner across the board**

Conventional Primers Requiring Labeling



**Primers Requiring Labeling
organometallic compounds**

- ▶ Heavy metals in wood primers are harmful to the environment
- ▶ In most cases, a warning label is required

Green Barrier Coat Primers



**Barrier coat primers using
DORVALIT® WSP do not
require labelling**

- ▶ **DORVALIT® WSP is non-hazardous**
- ▶ **Primers containing DORVALIT® WSP do not require warning labels**

Chapter 3

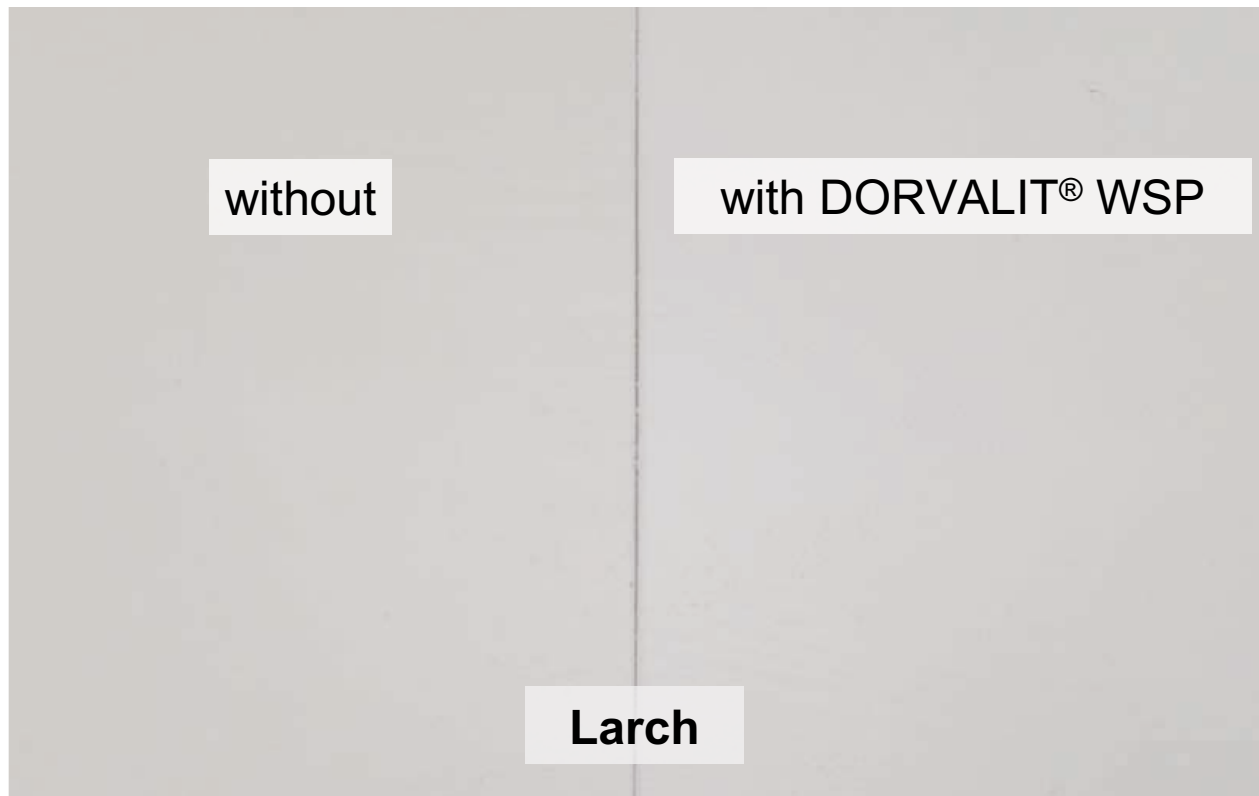
Practical examples and comparisons

Practical Trial (Guideline Formulation, 1/2)



- ▶ Guideline formulation without DORVALIT[®] WSP – heavy discoloration
- ▶ Guideline formulation with 15% DORVALIT[®] WSP – minimal discoloration

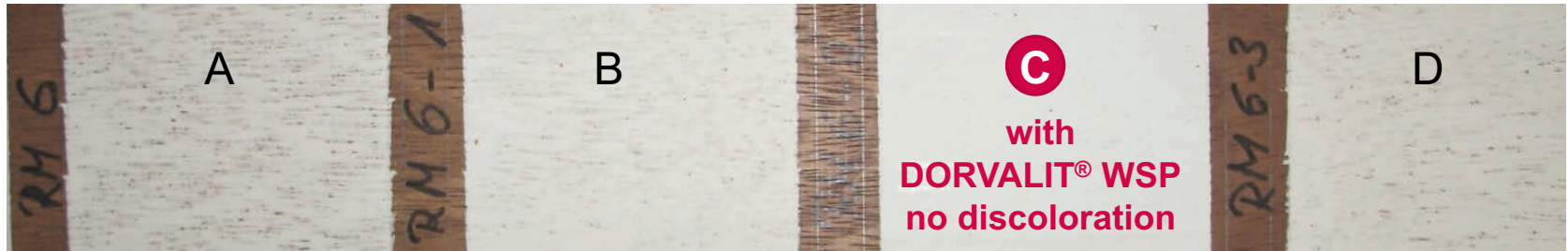
Practical Trial (Guideline Formulation, 2/2)



- ▶ Guideline formulation without DORVALIT® WSP – extensive yellowing
- ▶ Guideline formulation with 15% DORVALIT® WSP – very little discoloration

DORVALIT® WSP

in Comparative Practical Trials



A: Basis: anti-stain primer X (branded product // as made // on merbau)

B: plus 15 % kaolin

C: plus 15 % DORVALIT® WSP

D: plus 15 % chalk

- ▶ **DORVALIT® WSP significantly improves the effectiveness of a standard anti-stain primer**

DORVALIT® WSP

in Comparative Practical Trials



A: Basis: anti-stain primer Y (branded product // as made // on merbau)

B: plus 15 % kaolin

C: plus 15 % DORVALIT® WSP

D: plus 15 % chalk

- ▶ **DORVALIT® WSP greatly enhances the barrier effect of standard anti-stain primers**

DORVALIT® WSP

in Comparative Practical Trials



A: Basis: anti-stain primer Z (branded product // as made // on merbau)

B: plus 15 % kaolin

C: plus 15 % DORVALIT® WSP

D: plus 15 % chalk

- ▶ **DORVALIT® WSP has high anti-stain power**
- ▶ **Any anti-stain primer can benefit**

Summary

- > Innovative functional filler for wood primers
- > New mode of action (lock & key principle)
- > Wood Stain Protection Technology (patent pending)
- > Firmly embedded in the wood coating
- > Extremely effective in blocking and immobilizing wood extractives
- > Product does not require special labeling
- > Product has unique selling point in the market



► **Take advantage of the unique DORVALIT® WSP selling point for your business**

Chapter 4:

Customer Benefits

DORVALIT® WSP: Formulation in Classic Wood Coating

Classic Wood Coating

1. Coat



Drying Time 6 Hours



2. Coat



Drying Time 6 Hours



Final
Coat



Formulation with DORVALIT® WSP

1. Coat



Drying Time 6 Hours



Final
Coat



- 6 H Drying Time
- 1 Coat

DORVALIT® WSP: Formulation in Industrial Wood Coating

Industrial Wood Coating

Impregnation



Drying Time
4 Hours



Isolating
Primer



Drying Time
4 Hours



Intermediate
Coating



Drying Time
4 Hours



Topcoat



Formulation with DORVALIT® WSP

Impregnation



Drying Time
4 Hours



Isolating
Primer



Drying Time
4 Hours



Topcoat



- 4 H Drying Time
- 1 Coat

DORVALIT[®] WSP: Cost Savings

- > For **Classic Wood Coatings** as well as for Industrial Wood Coatings a formulation with DORVALIT[®] WSP can save one coating and drying time.
- > The **total costs** will be reduced by more than **30%**.

DORVALIT® WSP:

Technical Customer Benefits

- > Unique Wood Stain Protection Technology
- > High-grade kaolin with special surface modification
- > Selective binding sites immobilized on kaolin
- > Lock & key mechanism for phenolic tannin OH groups
- > Quantitative retention and immobilization of color wood extractives
- > Highly-efficient migration barrier, unbreachable for wood extractives
- > Greatly increases the effectiveness of standard anti-stain primers

DORVALIT[®] WSP:

Operational Customer Benefits

- > Can be added to almost every wood primer formulation
- > Functional filler firmly "anchored" in the binder matrix
- > No migration, no bleeding, no washing out
- > Very easy to blend into water-based paint formulations
- > Highly versatile, constituents used in the formulation do not have to meet special requirements
- > Enhances the filler properties and other technical paint parameters

DORVALIT® WSP:

Economic Customer Benefits

- > Gives paint manufacturers unprecedented protection against discoloration
- > Minimizes risk of complaints
- > Makes it possible to formulate barrier primers with spectacularly low material costs
- > Extremely high savings potential which quickly justifies reformulation
- > Little or no formulation adaptation needed
- > Suitable for almost every formulation
- > Replaces organometallic systems currently in use
- > Green product, no special labeling required

DORVALIT® WSP:

Ready for action

- > Pilot customers are testing at the moment with first positive results
- > Celanese has approved DORVALIT® WSP
- > Production successful
- > Product is available, ready for selling
- > No labeling + high performance = DORVALIT® WSP („double“ USP)

► **Take advantage of the double unique selling point for your business**

Ugo Mantellino
EMEA Supplier Manager

Ugo.Mantellino@univar.com



Univar Spa
Via Caldera, 21
20153 Milan - Italy