We will start soon…

To make this call most efficient for everybody, we have **muted** your phones.

For questions, kindly use the **chat function**.

Should you have trouble hearing us, kindly choose **“use computer for audio”**. Should there still be issues, kindly try **reconnecting** to the webinar.

The **presentation** will be **shared** with all participants after the webinar.

Your **hosts** for this call

Formulation Additives for Industrial Wood Coatings

Peter Bene
Presenter

Andrea Schamp/
Kerstin Schurig
Chat

Formulation Additives for Industrial Wood Coatings

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290 - Our premium choices for dispersing transparent iron oxides

Ludwigshafen, 07.01.2021

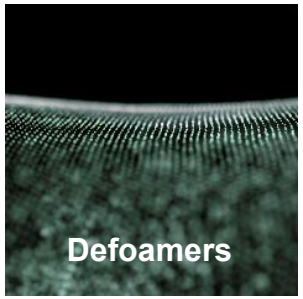
Peter Bene

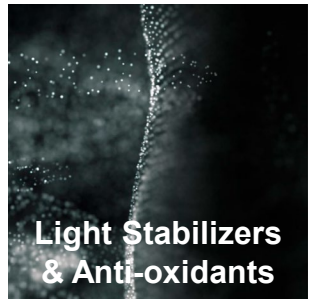
Technical Sales
Formulation Additives
EMEA

Agenda

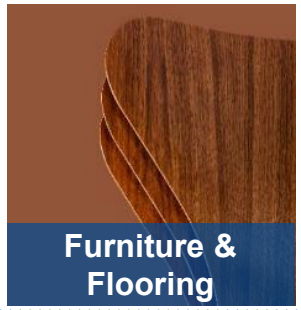
1. Introduction
2. Resin-free pigment concentrates with transparent iron oxides
3. Performance in aqueous wood coating formulation based on Acronal® LR 9014 system
4. Summary

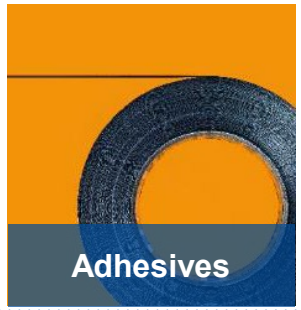
Our comprehensive portfolio enables solutions for various industries

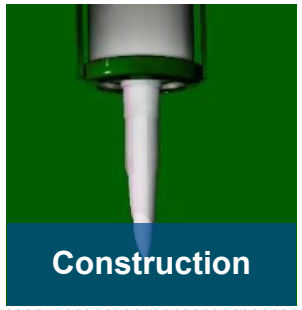


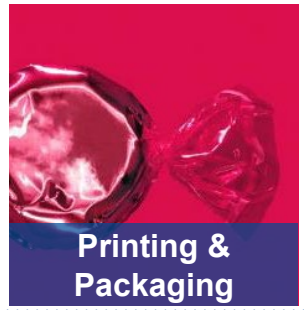


BASF is the premiere provider of **Performance & Formulation Additives** for the paints and coatings industry









BASF
We create chemistry

Formulation additives focus products for industrial wood

	Defoamers	Wetting agents & surface modifiers	Dispersing agents		Rheology modifiers
			High molecular weight	Low molecular weight	
Water-based	**FoamStar®** ED 2522 ED 2523 SI 2210 SI 2240 SI 2250 SI 2280 SI 2292 SI 2299 ST 2438 **Foamaster®** NO 2306	**Hydropalat®** SL 3682 WE 3120 WE 3220 / WE 3221 WE 3225 WE 3323 WE 3475 WE 3650	**Dispex®** AA 4040 AA 4135 AA 4140 **Dispex® Ultra** **CX 4452** **PX 4290** PX 4275 PX 4575 PX 4585		**Rheovis®** AS 1130 HS 1162 HS 1303 EB PE 1330 PU 1191 PU 1291 PU 1331
Solvent-based	**Efka®** PB 2010 PB 2720 PB 2744 SI 2022 SI 2040 SI 2721 SI 2723	**Efka®** FL 3277 FL 3670 FL 3740 FL 3741 FL 3745 SL 3236	**Efka®** PU 4063 PX 4290 PX 4330 PX 4733 PX 4753 PX 4780 PX 4787	**Efka®** FA 4609 FA 411	**Efka®** RM 1463 RM 1506
Universal UV systems	**Efka®** PB 2770	**Efka®** SL 3030 SL 3034 SL 3035 SL 3258 SL 3299		**Dispex® Ultra** FA 4420 FA 4480 FA 4483	

BASF
We create chemistry

Our challenge…

achieving excellent **viscosity reduction, storage stability** and **high transparency** with **aqueous, transparent iron oxide pigment preparations at high pigment loads** is not an easy task.

BASF Formulation Additives has studied a series of different dispersing agents, transparent iron oxide pigments and dispersions to identify the **best solution for your formulation**.

…a simple solution

Dispex® Ultra CX 4452
&
Dispex® Ultra PX 4290

are excellent dispersing agents for transparent iron oxides

in aqueous coating systems.

Dispex® Ultra CX 4452

Novel aqueous, high performance dispersant for transparent iron oxides

Performance highlights:

- Excellent pigment stabilizing characteristics
- Outstanding color strength and viscosity reduction
- High transparencies with transparent iron oxides
- Extremely low foaming
- Global country registrations

Application:

Dispex® Ultra CX 4452 is a **very effective dispersing agent** especially for **inorganic pigments** - in particular **transparent iron oxides and fillers** - in **aqueous** coating formulations
This allows higher pigment loadings while excellent flow characteristics are maintained.

Sustainability highlights:

- Low VOC acc. to EU 2004/42 method
- Label-free

Characteristic Values:

Appearance	Clear, yellowish liquid
Solvent	water
Density	~ 1.097 g/cm^3
Active content	~ 40%

BASF
We create chemistry

Dispex® Ultra PX 4290

New high molecular weight dispersing agent for organic and inorganic pigments in aqueous coating systems, printing inks and adhesives.

Application:

Dispex® Ultra PX 4290 is a dispersing agent for organic and inorganic pigments in aqueous coating systems, printing inks and adhesives. Due to the excellent stabilizing characteristics high levels of gloss, outstanding color strength and excellent viscosity reduction can be achieved. This allows also higher pigment loadings while excellent flow characteristics are maintained.

Sustainability highlights:

- Label-free
- Food Contact Compliance
- Suitable for a broad range of applications

Performance highlights:

- Designed to stabilize inorganic and organic pigments in aqueous formulations
- Improved color strength and transparency
- Improved gloss
- Anti-flooding behavior
- Excellent flocculation stability
- Solvent-free

Characteristic Values:

Appearance	Clear, yellowish liquid
Solvent	water
Density	~ 1.06 g/cm^3
Active content	~ 40%

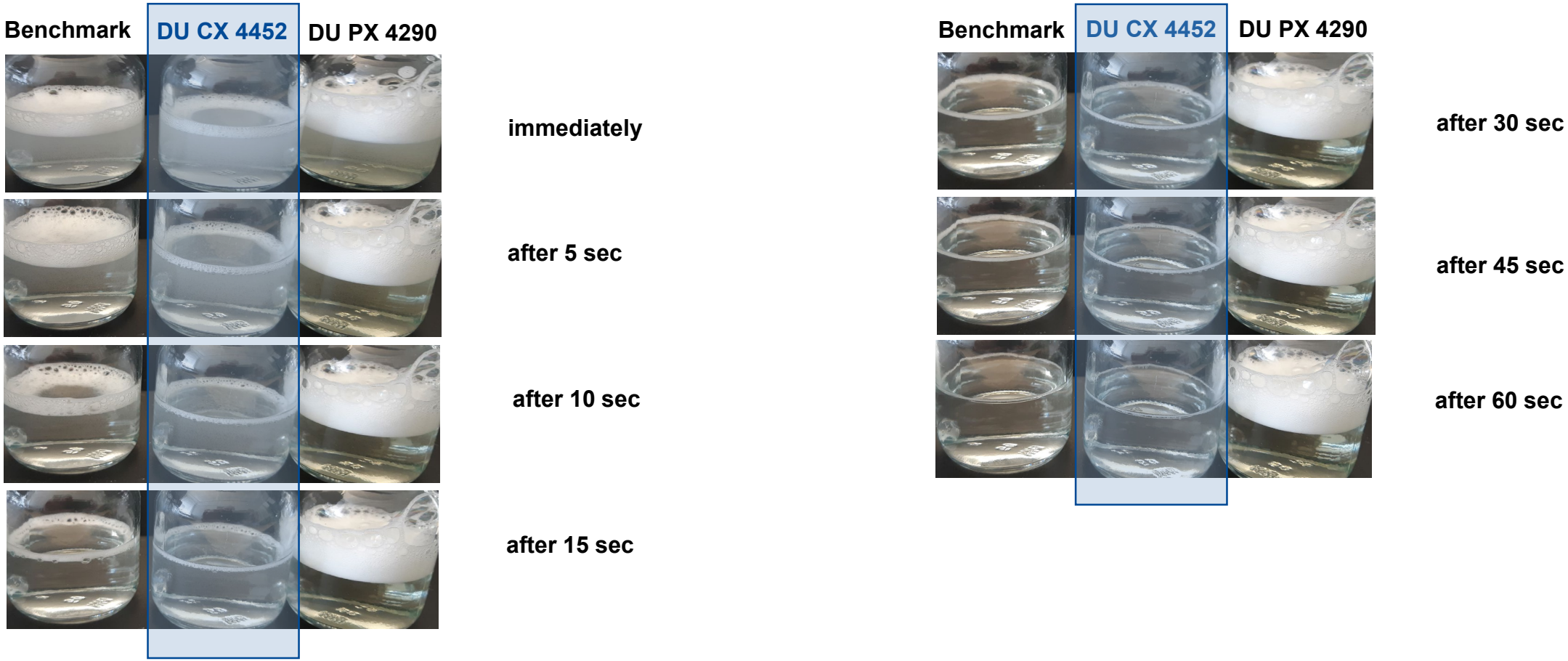
BASF
We create chemistry

Agenda

1. Introduction
2. Resin-free pigment concentrates with transparent iron oxides
3. Performance in aqueous wood coating formulation based on Acronal® LR 9014 system
4. Summary

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Foaming behaviour (10% dispersant in water); hand shaking for 30s



Dispex® Ultra CX 4452 shows **outstanding low foaming** and a **very quick foam knock-down** in comparison to market standards.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

List of pigments tested (40% pigment load)

Pigments	CI	Supplier	DaoP* in %
Sicotrans® Yellow L 1916	PY 42	BASF Colors & Effects	20
Sicotrans® Red L 2817	PR 101		20
Sicotrans® Red L 2818	PR 101		35
Transoxid® Yellow AC 0500	PY 42	Venator (ex Huntsman)	30
Transoxid® Yellow AC 0544	PY 42		25
Transoxid® Yellow AC 0575	PY 42		25
Transoxid® Red AC 1005	PR 101		25
Transoxid® Brown AC 3000	PR 101		25

*Dispersant active on Pigment

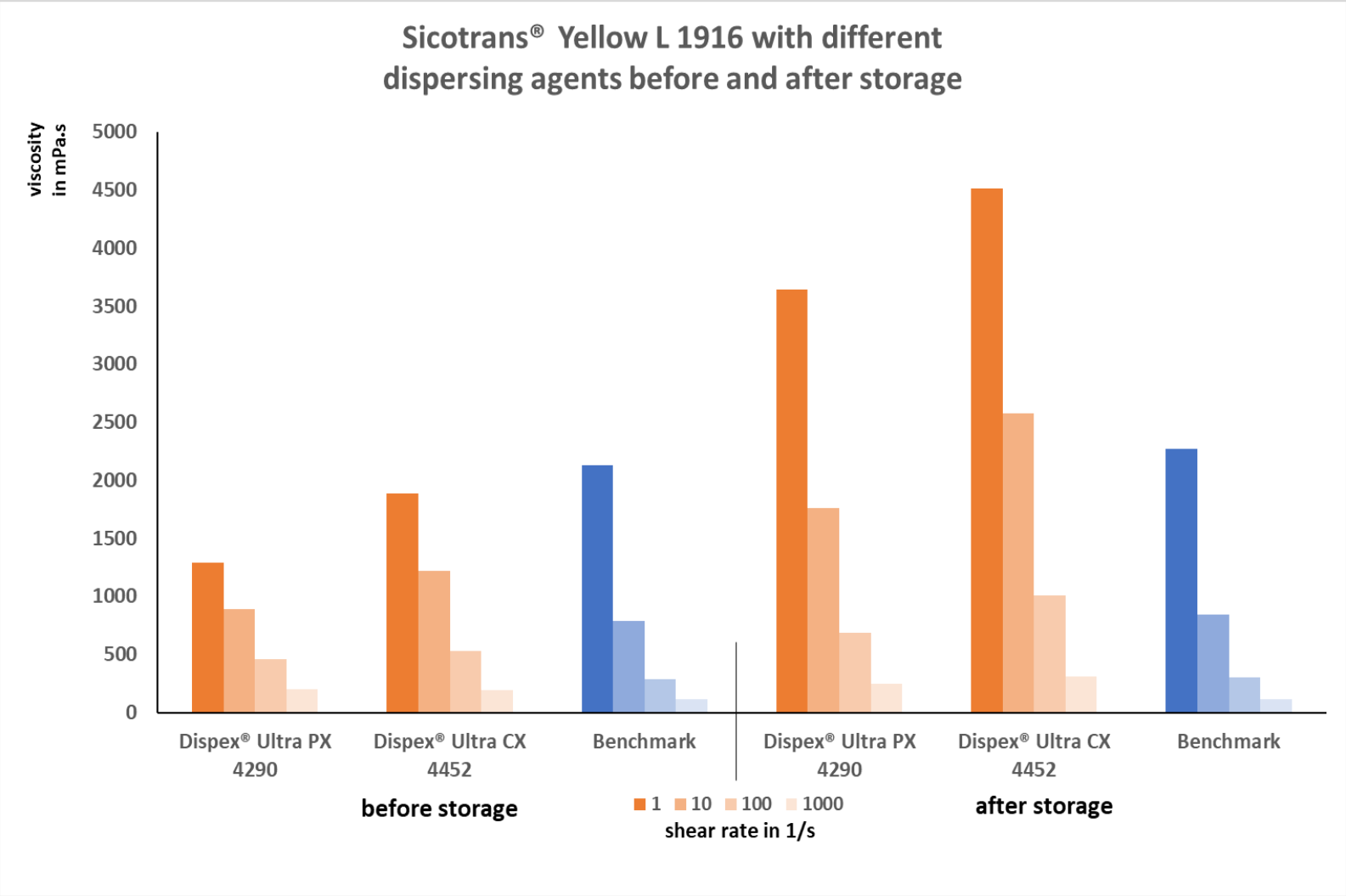
Pigment concentrates recipes

	solids	recipe1	recipe 2	recipe 3
Inorganic pigment*		40	40	40
Dispex® Ultra CX 4452	38%	21.1-36.8**		
Dispex® Ultra PX 4290	40%		20-35**	
Benchmark	50%			**16-28
AMP® 90		0.2	0.2	0.2
Defoamer		0.1	0.1	0.1
Hydropalat® WE 3221		0.3	0.3	0.3
water		22.6-38.3	24.4-39.4	31.4-43.4

* transparent iron oxides from BASF colors & effects and Venator

** depends on dispersant demand on pigment (pigment dependent)

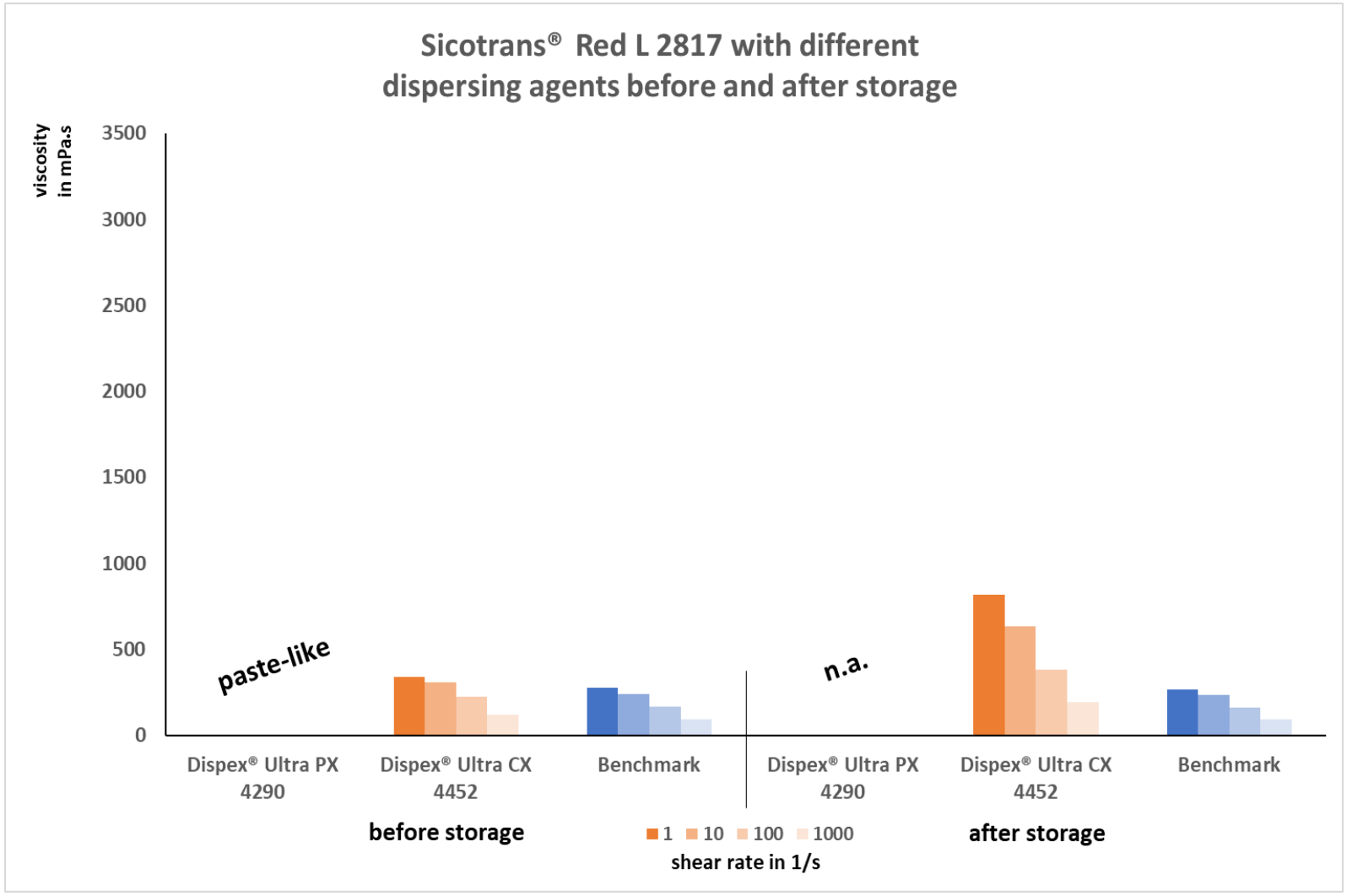
Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290 Sicotrans® Yellow L 1916 (40% pigment)



Dispex® Ultra CX 4452 and PX 4290 show good viscosity reduction at high pigment loads (40% pigment) with Sicotrans® Yellow L 1916 before and after storage.

BASF
We create chemistry

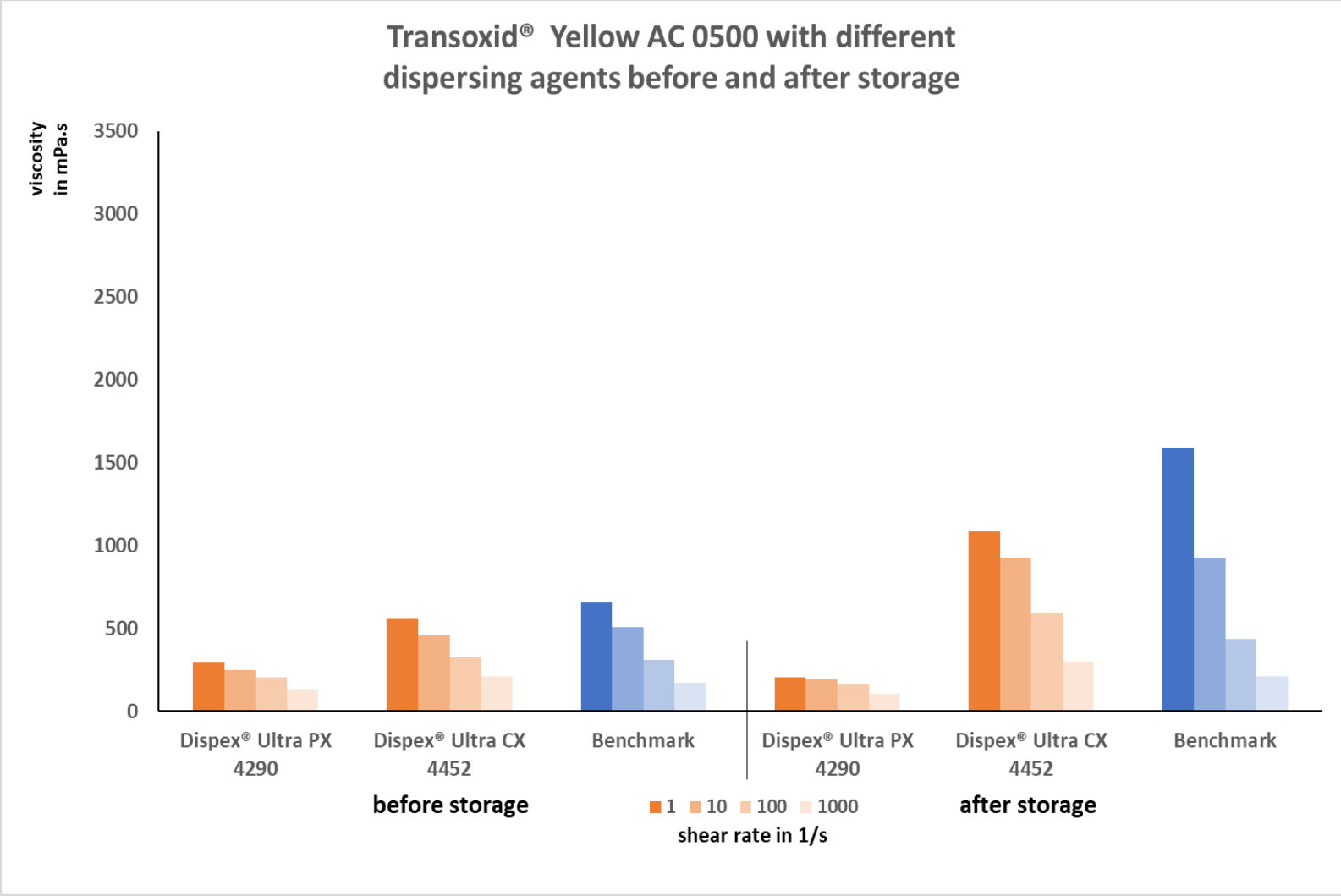
Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290
Sicotrans® Red L 2817 (40% pigment)



Dispex® Ultra CX 4452 shows good viscosity at high pigment loads (40% pigment) with Sicotrans® Red L 2817 before and after storage.

BASF
We create chemistry

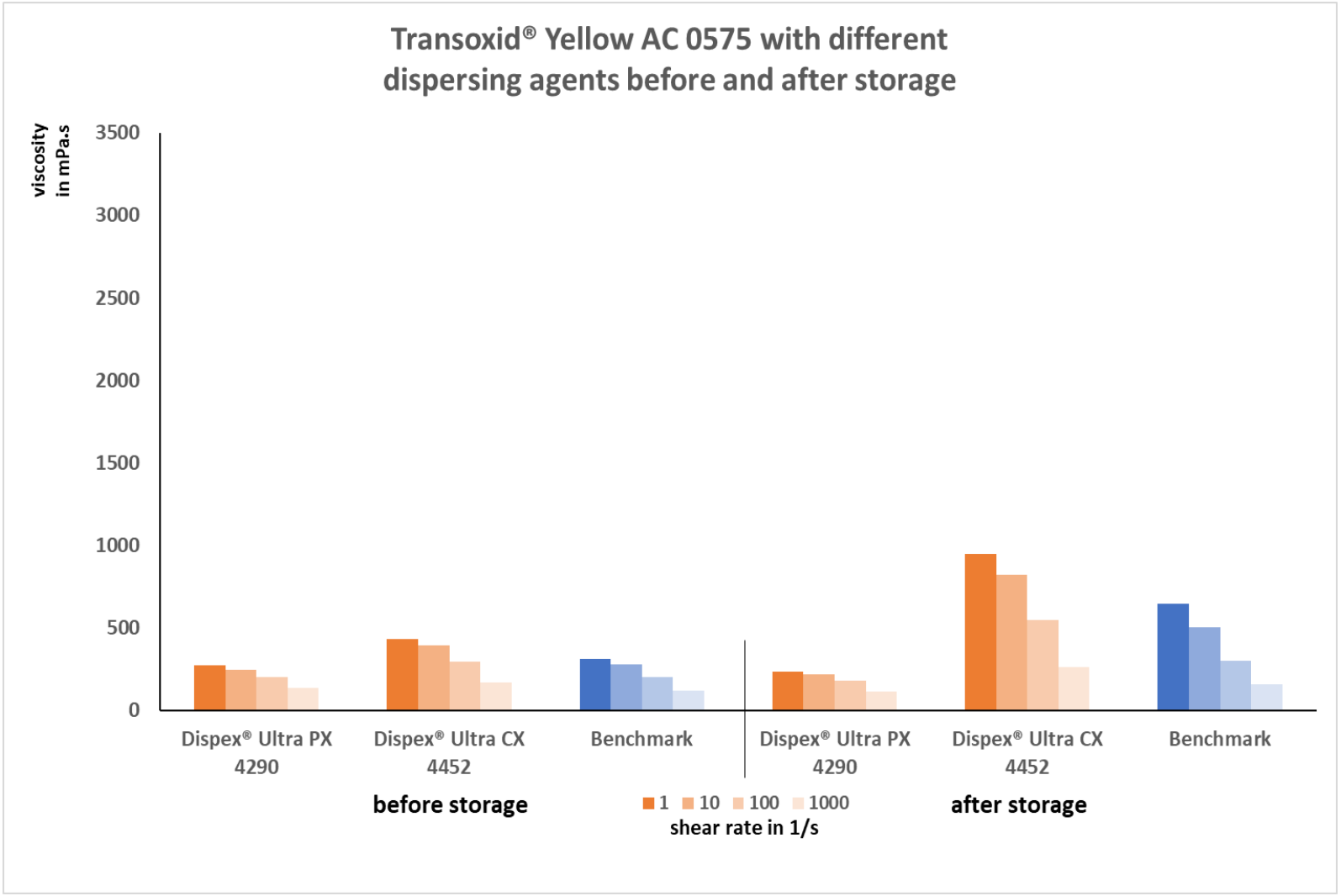
Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290 Transoxid® Yellow AC 0500 (40% pigment)



Dispex® Ultra CX 4452 shows excellent viscosity at high pigment loads (40% pigment) with Transoxid® Yellow AC 0500 before and after storage.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290
Transoxid® Yellow AC 0575 (40% pigment)



Dispex® Ultra CX 4452 shows acceptable viscosity, while Dispex® Ultra PX 4290 exhibits excellent viscosity stability at high pigment loads (40% pigment) with Transoxid® Yellow AC 0575 before and after storage.

BASF
We create chemistry

Agenda

1. Introduction
2. Resin-free pigment concentrates with transparent iron oxides
3. Performance in aqueous wood coating formulation based on Acronal® LR 9014 system
4. Summary

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Guide formulation based on Acronal® LR 9014

Varnish based on Acronal® LR 9014	
Water	226
AMP® 90	1
Hydropalat® WE 3197	10
1,2 Propylene glycol	21
Solvenon® DPM	21
Tinuvin® 1130 (pre-blend with solvent)	10
Acronal® LR 9014	686
Rheovis® PU 1214	7
Rheovis® PE 1330	5
Water	13
	1000

Tinted formulation	
Varnish	950
Pigment concentrate as above	50
	1000

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on glass)

No varnish possible, pigment concentrate with DU PX 4290 was paste-like

Dispex® Ultra CX 4452 shows better transparency vs benchmark in both pigments.

Dispex® Ultra PX 4290 exhibits excellent transparency with Sicotrans® Yellow L 1916.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex Ultra PX 4290

Tests carried out in Acronal® LR 9014 guide formulation (on carton)

Transparent iron oxides in Acronal® LR 9014 (Sicotrans® Yellow L 1916)

Transparent iron oxides in Acronal® LR 9014 (Sicotrans® Red L 2817)

No varnish possible, pigment concentrate with DU PX 4290 was paste-like

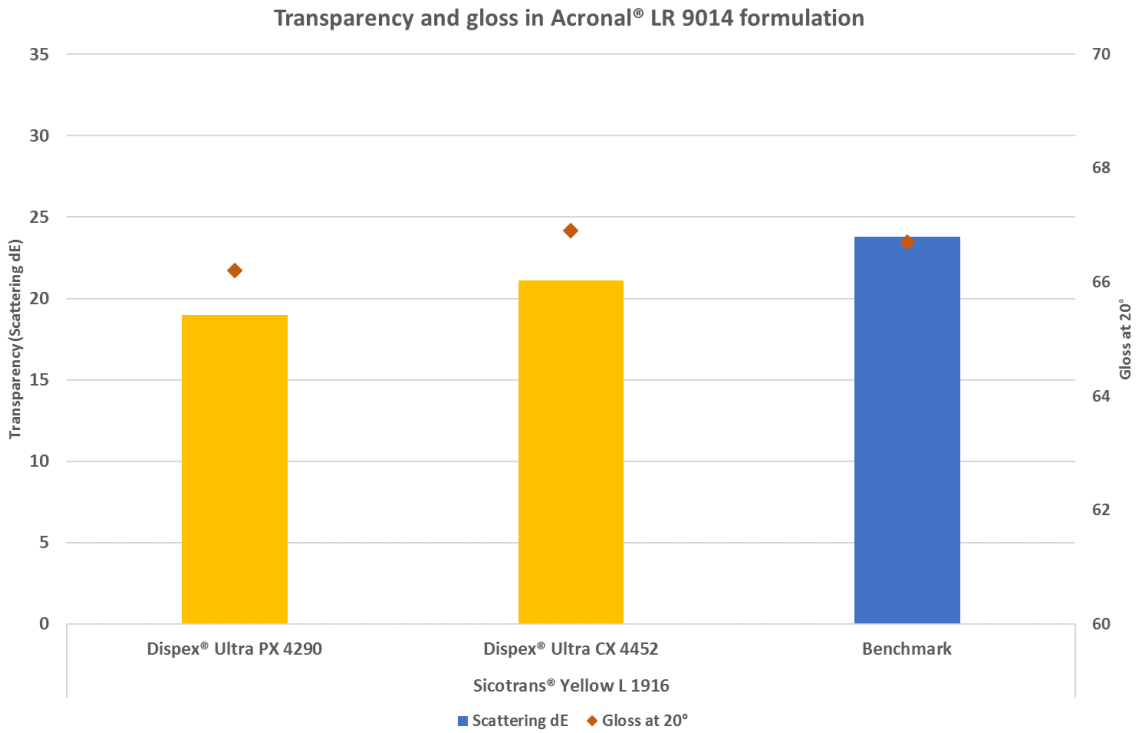
Dispex® Ultra CX 4452 shows better transparency vs benchmark with both pigments.

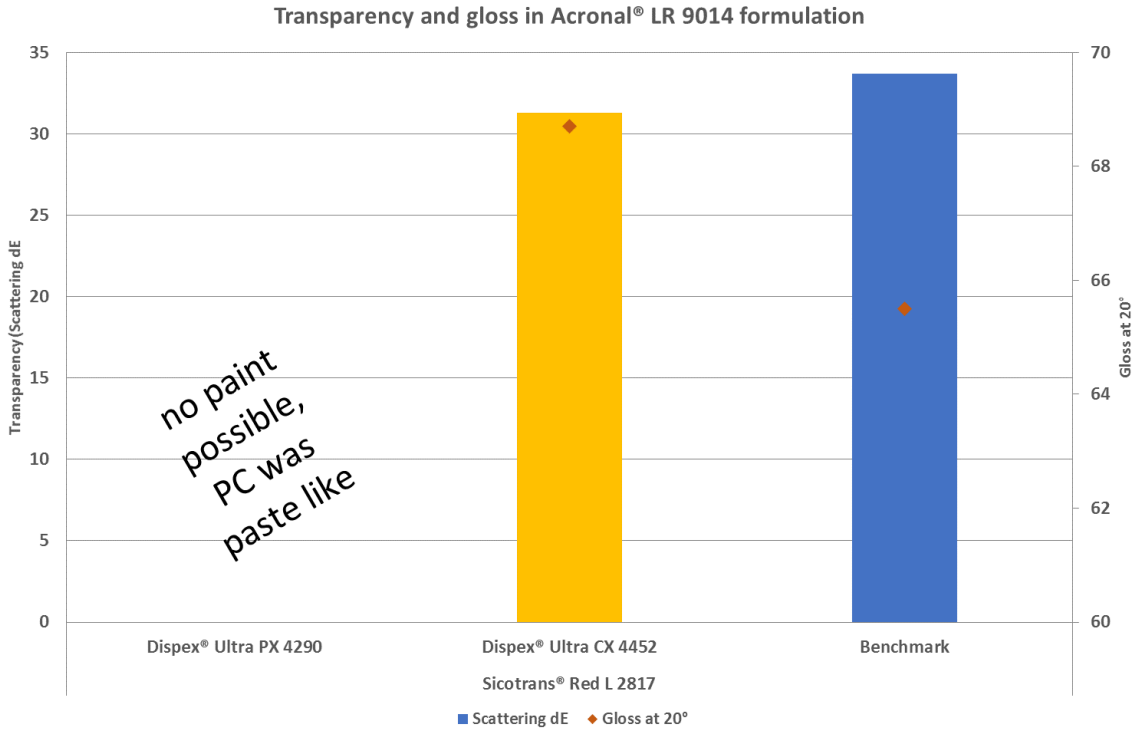
Dispex® Ultra PX 4290 exhibits excellent transparency with Sicotrans® Yellow L 1916.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)





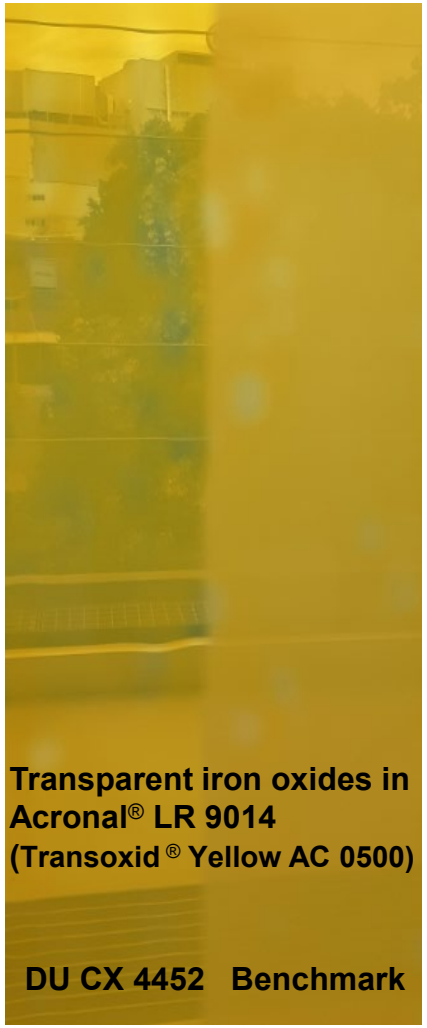
*The lower the Scattering dE value, the better the transparency.

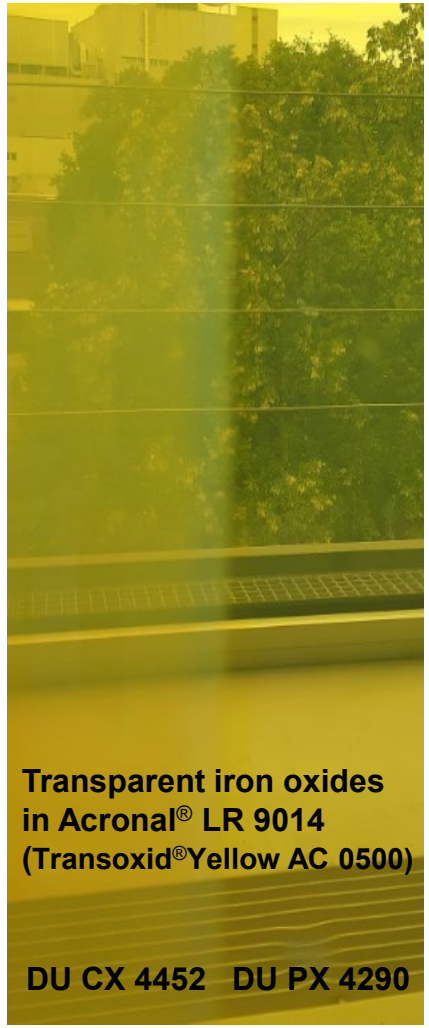
Measurement of Scattering dE proves the visual aspects of improved transparency of Dispex® Ultra CX 4452 with Sicotrans® Yellow L 1916 and Red L 2817. Also very low value of Dispex® Ultra PX 4290 confirms the outstanding transparency with Sicotrans® Yellow L 1916. Excellent gloss indicates very good compatibility.

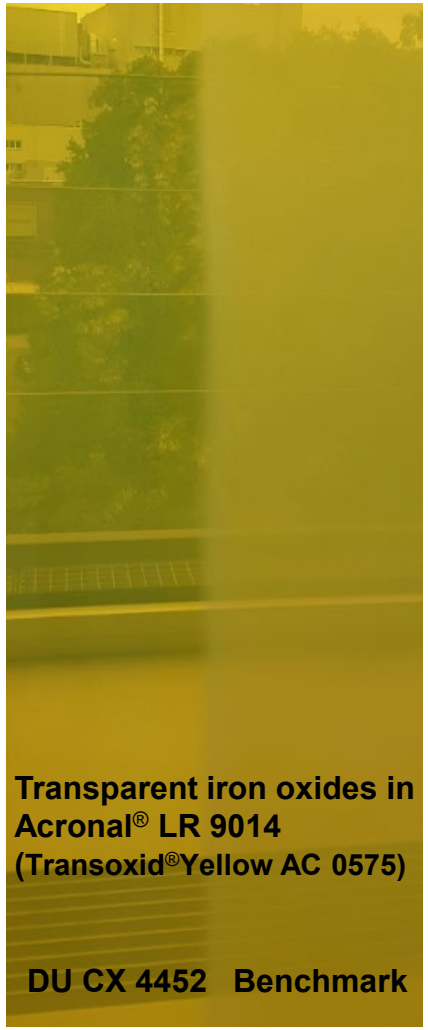
BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on glass)







Dispex® Ultra CX 4452 shows better transparency vs benchmark with both pigments.

Dispex® Ultra PX 4290 exhibits excellent transparency over CX 4452 and benchmark

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)

Transparent iron oxides in Acronal® LR 9014 (Transoxid® Yellow AC 0500)

DU PX 4290 | Benchmark | DU CX 4452

Transparent iron oxides in Acronal® LR 9014 (Transoxid®Yellow AC 0575)

DU PX 4290 | Benchmark | DU CX 4452

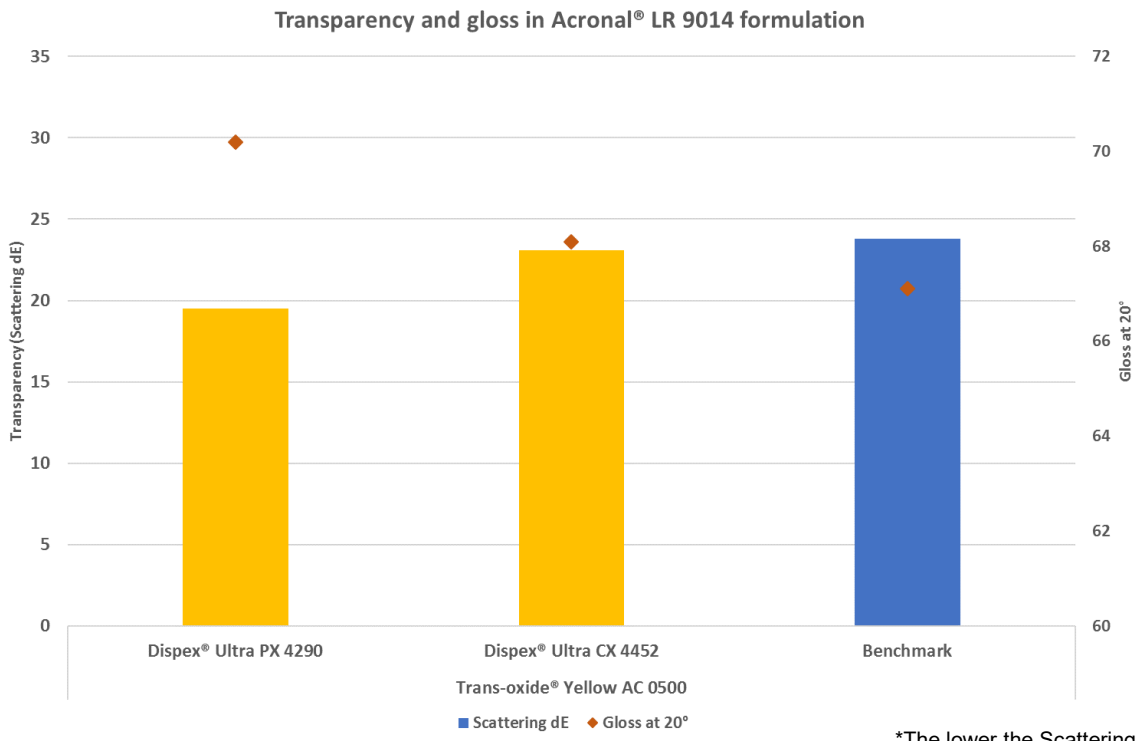
Dispex® Ultra CX 4452 shows better transparency vs benchmark with both pigments.

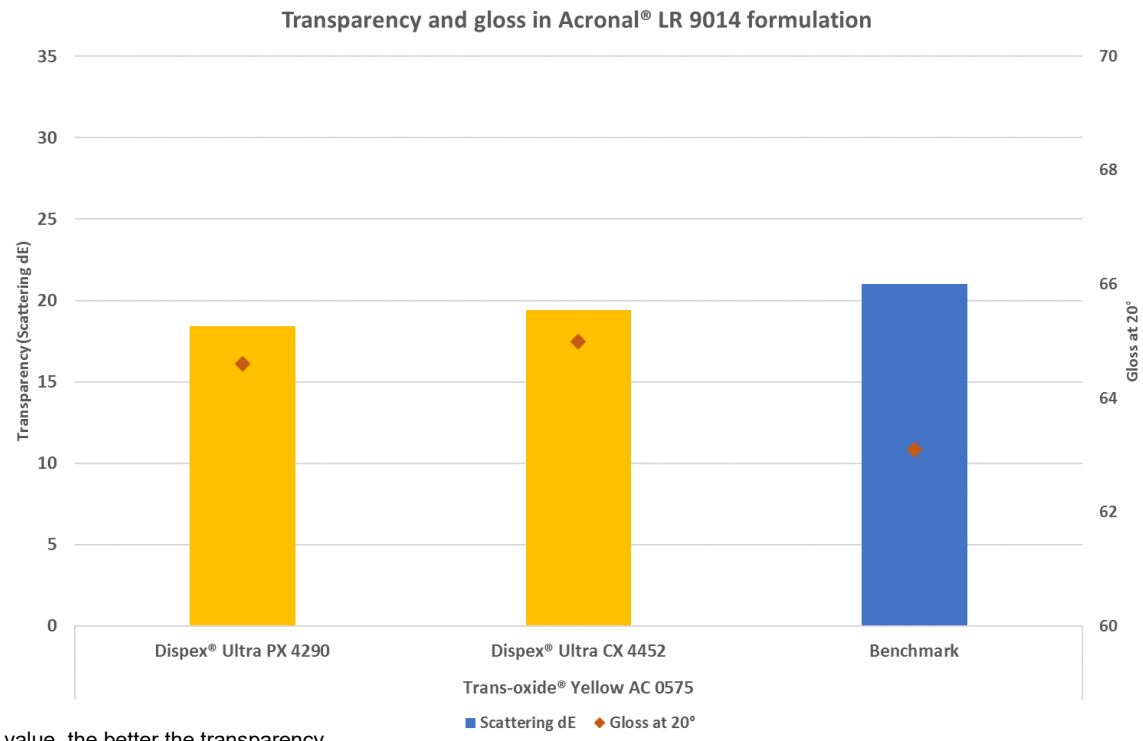
Dispex® Ultra PX 4290 exhibits excellent transparency over CX 4452 and benchmark

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)





*The lower the Scattering dE value, the better the transparency.

Measurement of Scattering dE proves the visual aspects of improved transparency of Dispex® Ultra CX 4452 and PX 4290 with Transoxid® Yellow AC 0500 and AC 0575. Also very low value of Dispex® Ultra PX 4290 confirm the outstanding transparency with both pigments. Excellent gloss levels indicate very good compatibility.

BASF
We create chemistry

Agenda

1. Introduction
2. Resin-free pigment concentrates with transparent iron oxides
3. Performance in aqueous wood coating formulation based on Acronal® LR 9014 system
4. Summary

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Summary	Dispex® Ultra CX 4452	Dispex® Ultra PX 4290
High pigment loading with good viscosity (even after storage)	+++	+++
Excellent transparency	++	+++
Low foaming	++++	++
Usability with a broader range of pigments	+++	++

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Pigments	CI	Dispex® Ultra CX 4452		Dispex® Ultra PX 4290	
		Viscosity	Transparency	Viscosity	Transparency
Sicotrans® Yellow L 1916	PY 42	++	++	+++	+++
Sicotrans® Red L 2817	PR 101	+++	+	Paste-like at 40% pigment load	
Sicotrans® Red L 2818	PR 101	+++	++	Paste-like at 40% pigment load	
Transoxid® Yellow AC 0500	PY 42	++	++	+++	+++
Transoxid® Yellow AC 0544	PY 42	++	++	++	+++
Transoxid® Yellow AC 0575	PY 42	++	++	+++	+++
Transoxid® Red AC 1005	PR 101	++	++	+++	+++
Transoxid® Brown AC 3000	PR 101	++	+	+++	++

Solution Finder Tool for Formulation Additives

Scan QR code for details

The **Solution Finder Tool** offers you the best additive solution for your formulation needs across all industries *(www.basf.com/solution-finder)*

Features & Benefits

- Formulation Additives guide for Paints and Coatings, Adhesives and Construction*
- Understand the benefits of our products (Dispersing Agents, Defoamers, Rheology Modifiers, Wetting Agents and Surface Modifiers, and Film-Forming Agents) by application, and with technical information
- Order samples or email us for detailed consultations
- Available on BASF web, Apple Store and Google Play Store**

*The product list and sample ordering for adhesives and construction are only applicable in Europe. It also comprises recommendations for Performance Additives
**To use this tool on your Windows device, please visit our website for details

Lab Assistant for Architectural Coatings

Lab Assistant is a web-based application that makes it easier for you to find BASF dispersions and additives for Architectural Coatings in Europe (*www.lab-assistant.basf.com*)

Features & Benefits

- Get product recommendations and formulation ideas according to the final properties of the paint, technical data, complete recipes and ingredient calculator
- Access formulation expertise to gain new insights and ideas
- All relevant data (e.g. MSDS, TDS, Reach, sustainability aspects, brochures, value cards, etc) available in one location
- Compare products or formulations
- Individualize your own account and share content with your colleagues
- Order samples or get in touch with our experts
- Runs on your PC / laptop / tablet / smartphone

Scan QR code for details

Contacts

Dr. Sascha Oestreich
Head of Technical Sales Formulation Additives
Phone: + 49 211 7940-9028
Mobile: +49 173 5396101
sascha.oestreich@basf.com

Andrea Schamp
Marketing Formulation Additives Europe
Phone: +49 211 7940-2605
Mobile: +49 173 5936561
andrea.schamp@basf.com

Peter Bene
Technical Sales Formulation Additives
Phone: +49 211 7940-5927
Mobile: +49 173 5117438
peter.bene@basf.com

Maurice Epple
Technical Sales Formulation Additives
Phone: +49 621 60-48183
Mobile: +49 173 3478278
maurice.epple@basf.com

internet: http://www.basf.com/additives

email: formulation-additives-europe@basf.com

BASF
We create chemistry

There is more to come…
Next series of Webinars starting Jan 20th

Performance Additives for Industrial Wood Coatings: **Jan 20 & 21**

Formulation Additives for Wood Coatings: **Jan 27 & 28**

Formulation Additives to improve surface slip and levelling: **Feb 3 & 4**

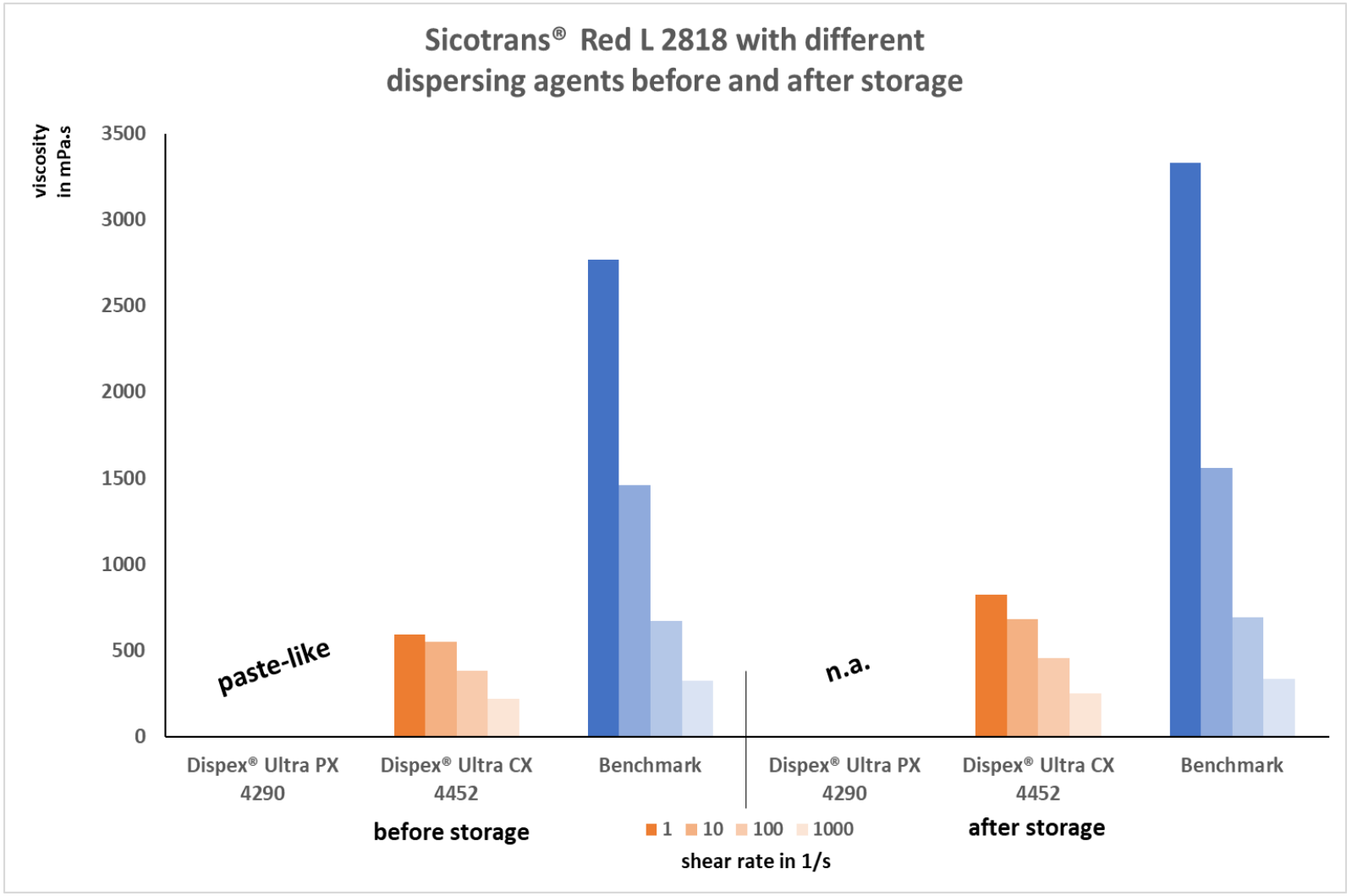
Dispersing agents for water-based DTM Coatings : **Feb 10 & 11**

Don’t want to miss the **next webinars**? Register for our **newsletters** at:
https://paints-coatings.basf.com/global/en/newsletter-coatings/subscribe.html or https://packaging-print.basf.com/global/en/newsletter-printing-packaging/subscribe.html

BASF

We create chemistry

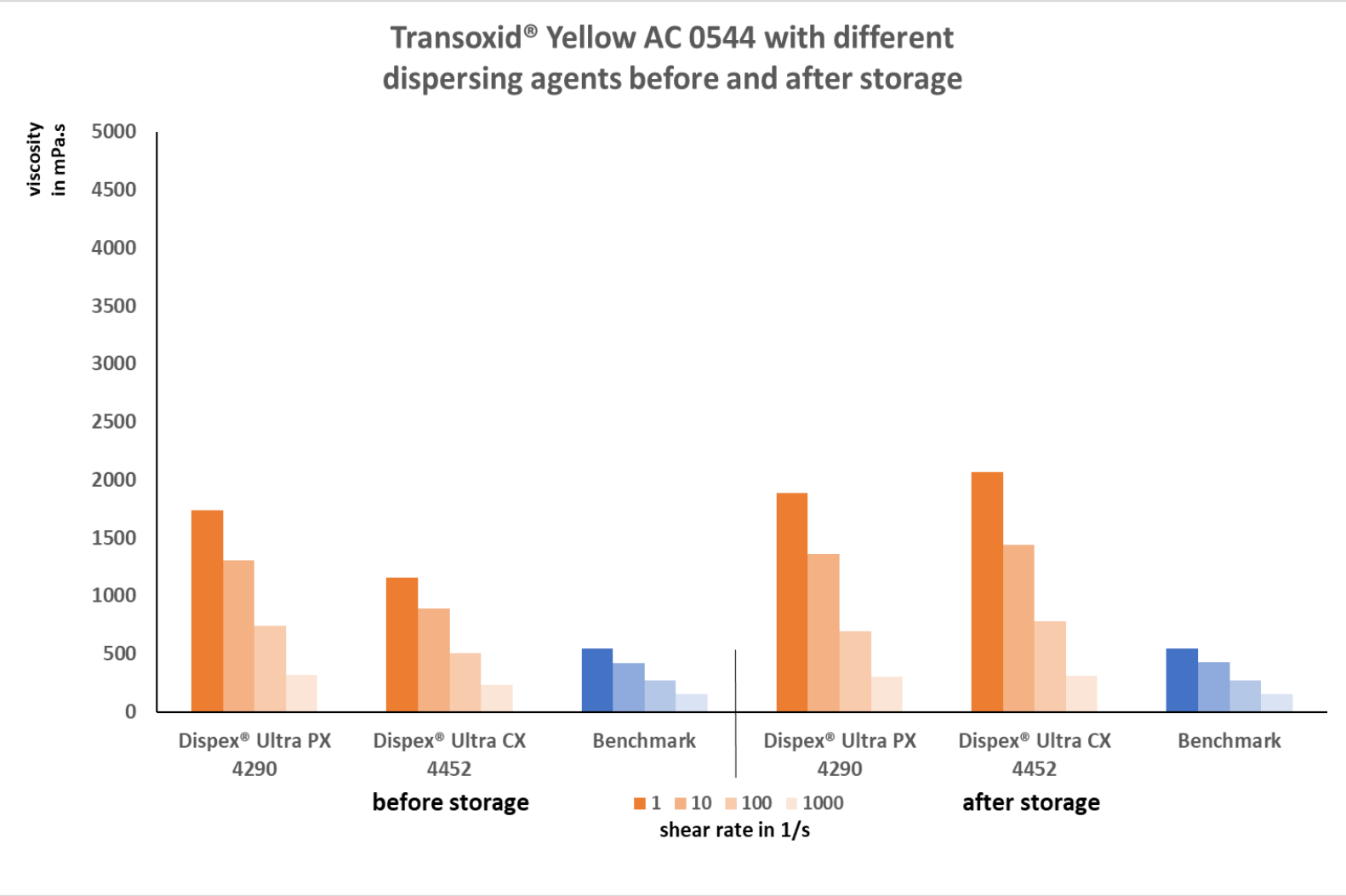
Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290 Sicotrans® Red L 2818 (40% pigment)



Dispex® Ultra CX 4452 shows excellent viscosity reduction at high pigment loads (40% pigment) with Sicotrans® Red L 2818 before and after storage.

BASF
We create chemistry

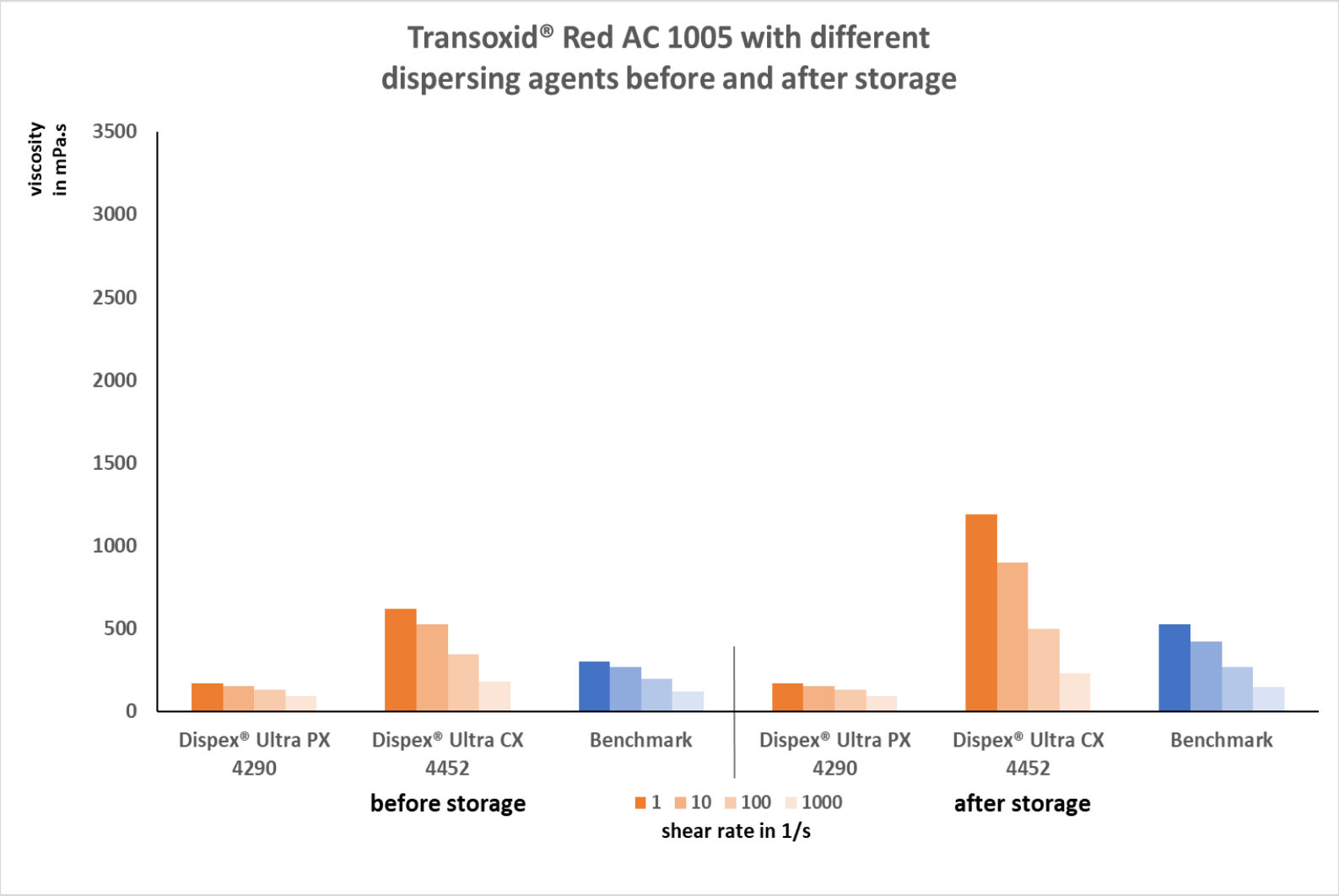
Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290
Transoxid® Yellow AC 0544 (40% pigment)



Dispex® Ultra CX 4452 and PX 4290 show good viscosity and viscosity stability at high pigment load (40% pigment) with Transoxid® Yellow AC 0544 before and after storage.

BASF
We create chemistry

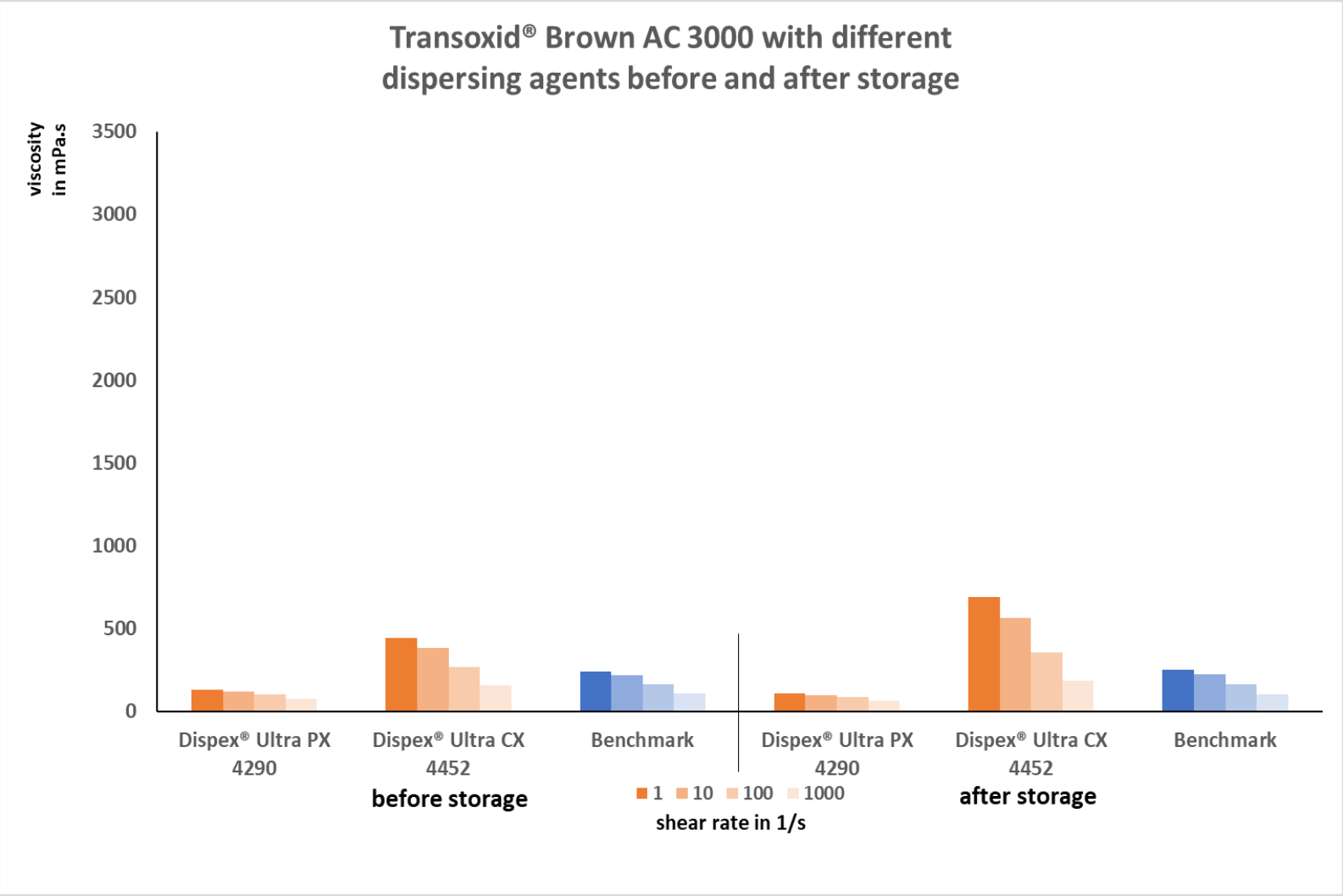
Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290
Transoxid® Red AC 1005 (40% pigment)



Dispex® Ultra CX 4452 shows acceptable viscosity, while Dispex® Ultra PX 4290 exhibits excellent viscosity stability at high pigment loads (40% pigment) with Transoxid® Red AC 1005 before and after storage.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290
Transoxid® Brown AC 3000 (40% pigment)



Dispex® Ultra CX 4452 shows good viscosity, while Dispex® Ultra PX 4290 exhibits excellent viscosity stability at high pigment loads (40% pigment) with Transoxid® Brown AC 3000 before and after storage.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation

Transparent iron oxides in Acronal® LR 9014 (Sicotrans® Red L 2818) (on glass)

DU CX 4452 **Benchmark**

Transparent iron oxides in Acronal® LR 9014 (Sicotrans® Red L 2818) (on carton)

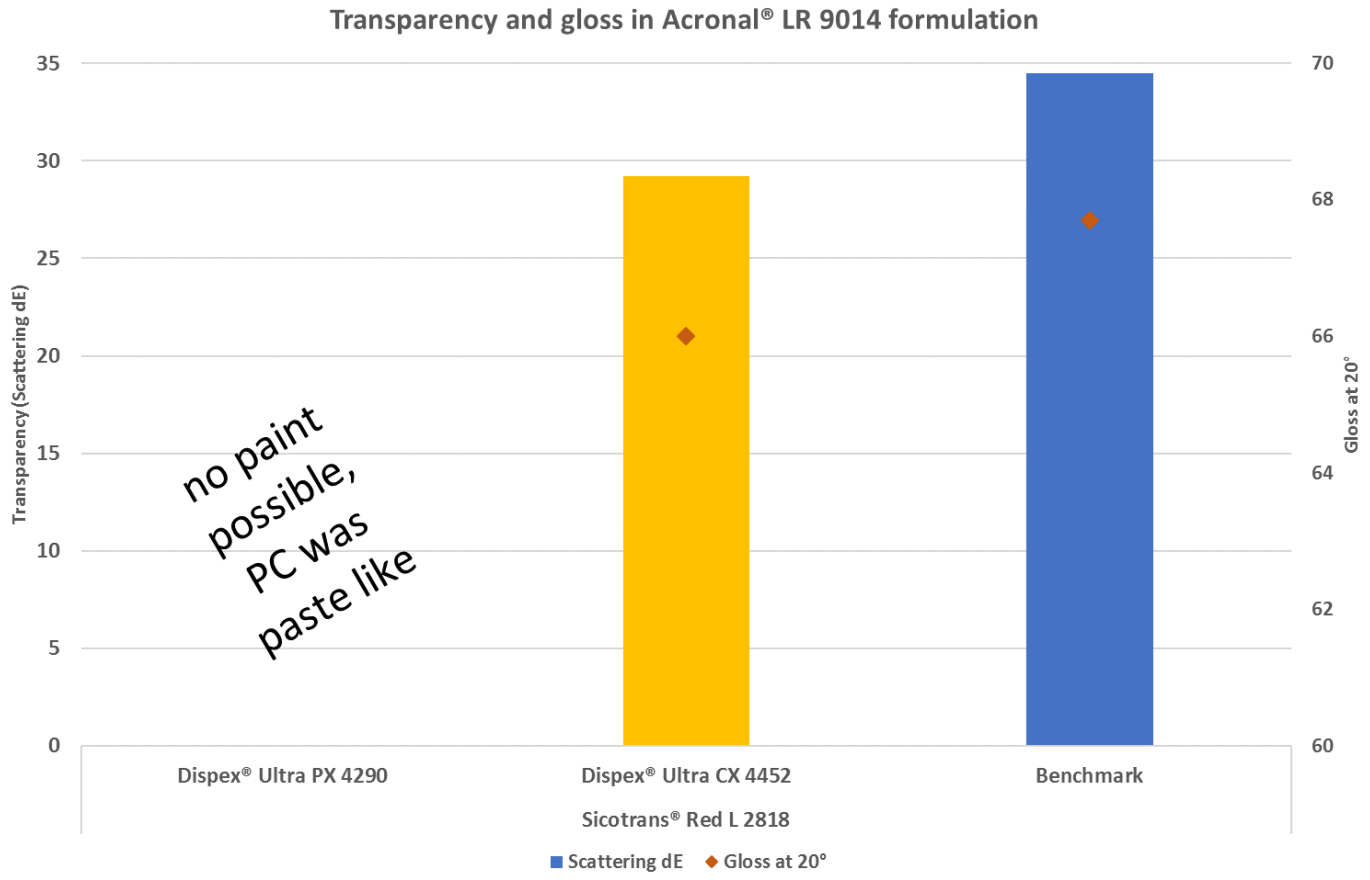
Benchmark **DU CX 4452**

No varnish possible, pigment concentrate with DU PX 4290 was paste-like

Dispex® Ultra CX 4452 shows slightly better transparency vs benchmark with Sicotrans® Red L 2818.

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)



Measurement of Scattering dE proves the visual aspects of improved transparency of Dispex® Ultra CX 4452 with Sicotrans® Red L 2818. Excellent gloss levels show very good compatibility.

*The lower the Scattering dE value, the better the transparency.

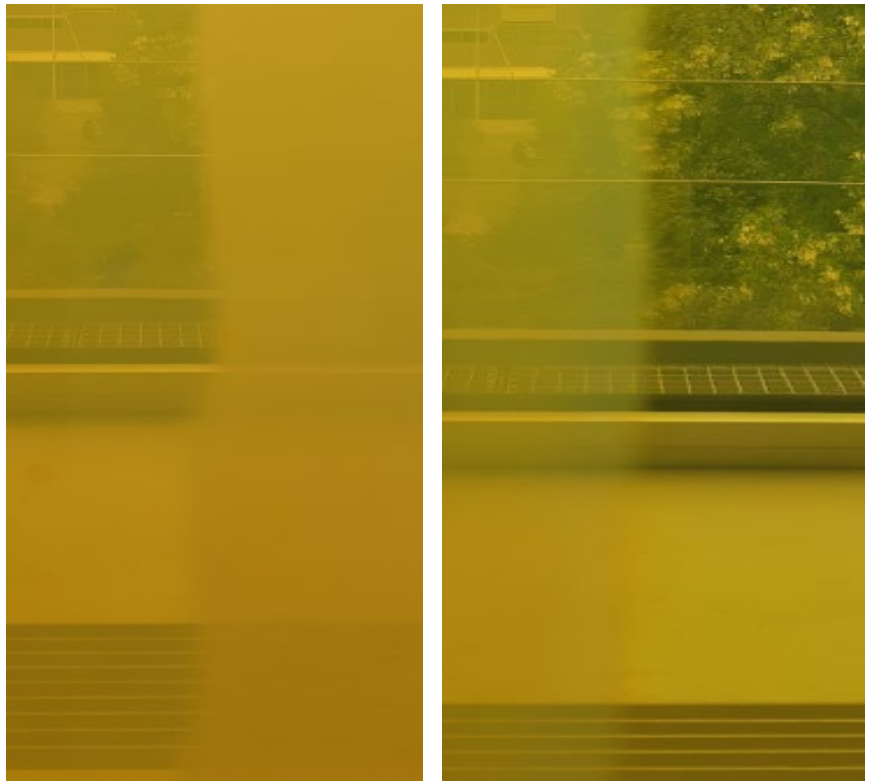
BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on glass)

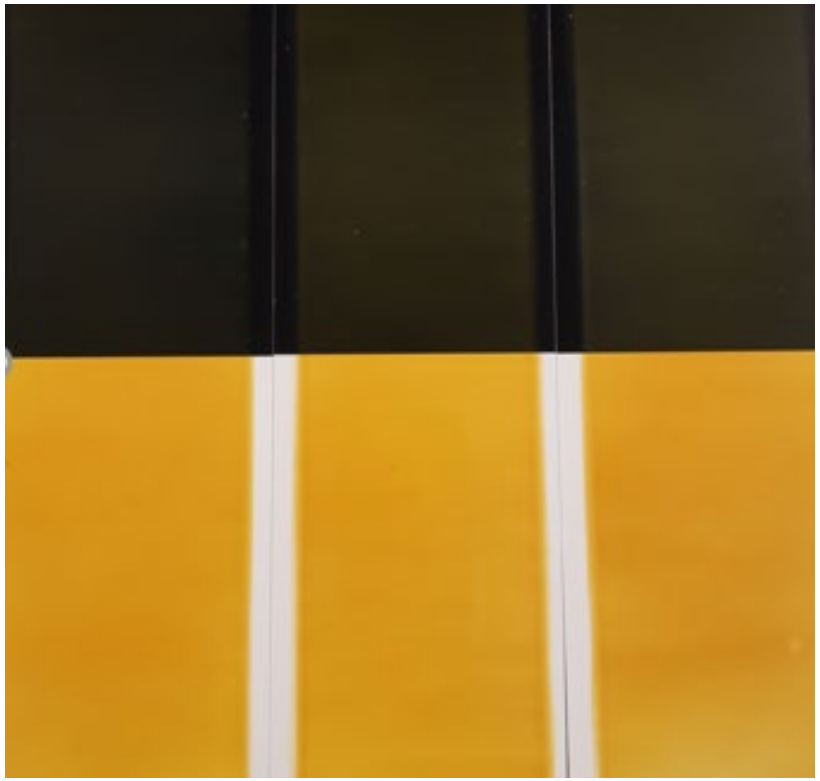
Transparent iron oxides in Acronal® LR 9014 (Transoxid®Yellow AC 0544) (on glass)

DU CX 4452 Benchmark DU CX 4452 DU PX 4290



Transparent iron oxides in Acronal® LR 9014 (Transoxid®Yellow AC 0544) (on carton)

DU PX 4290 Benchmark DU CX 4452



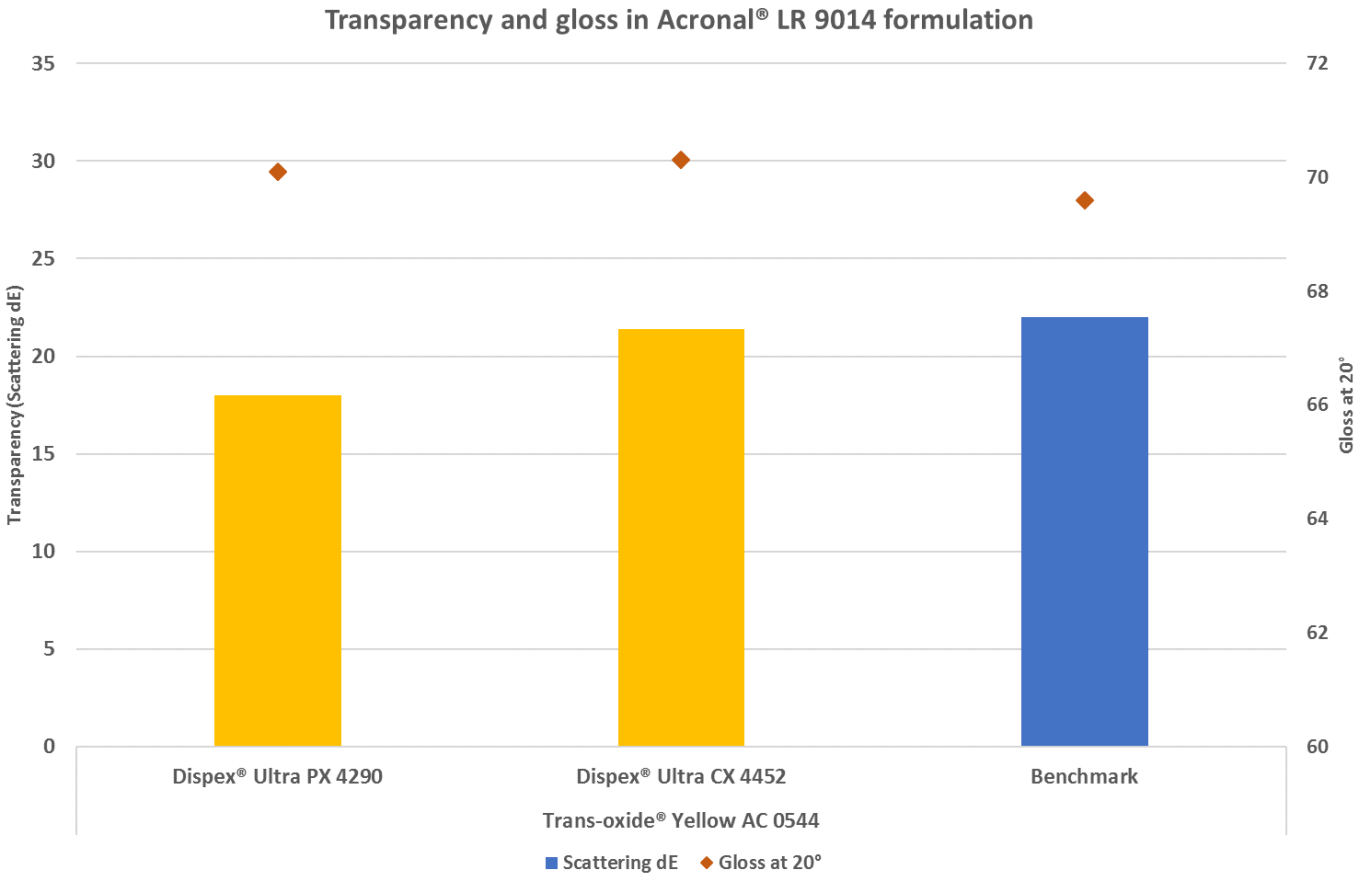
Dispex® Ultra CX 4452 shows better transparency vs benchmark with Transoxid® Yellow AC 0544.

Dispex® Ultra PX 4290 exhibits excellent transparency over CX 4452 and benchmark.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)



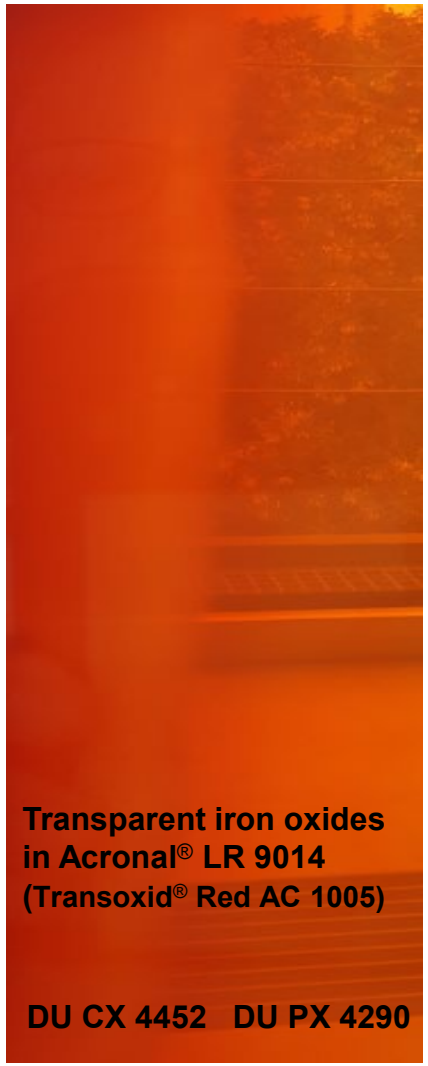
*The lower the Scattering dE value, the better the transparency.

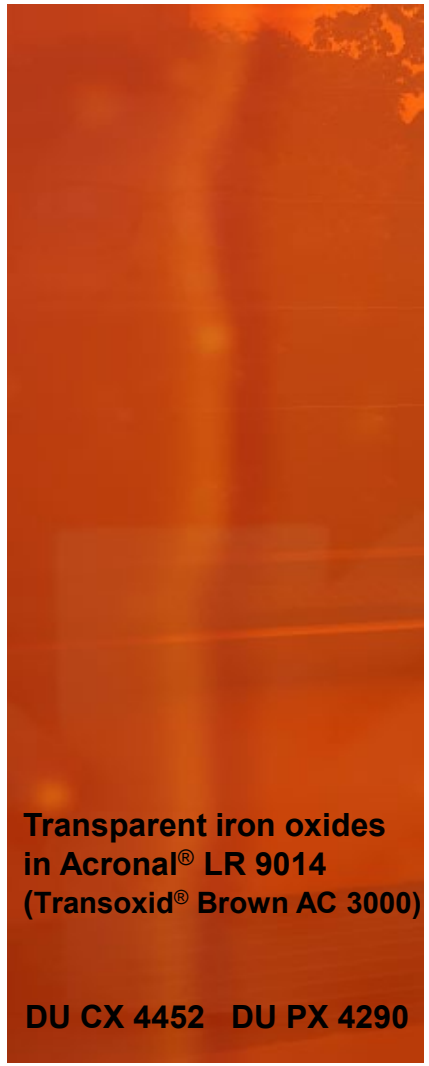
Measurement of Scattering dE proves the visual aspects of improved transparency of Dispex® Ultra CX 4452 or Dispex® Ultra PX 4290 with Transoxid® Yellow AC 0544. Excellent gloss levels indicate very good compatibility.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on glass)





Dispex® Ultra CX 4452 shows better transparency vs benchmark with both pigments.

Dispex® Ultra PX 4290 exhibits excellent transparency over CX 4452 and benchmark

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)

Transparent iron oxides in Acronal® LR 9014 (Transoxid® Red AC 1005)

DU PX 4290 | Benchmark | DU CX 4452

Transparent iron oxides in Acronal® LR 9014 (Transoxid® Brown AC 3000)

DU PX 4290 | Benchmark | DU CX 4452

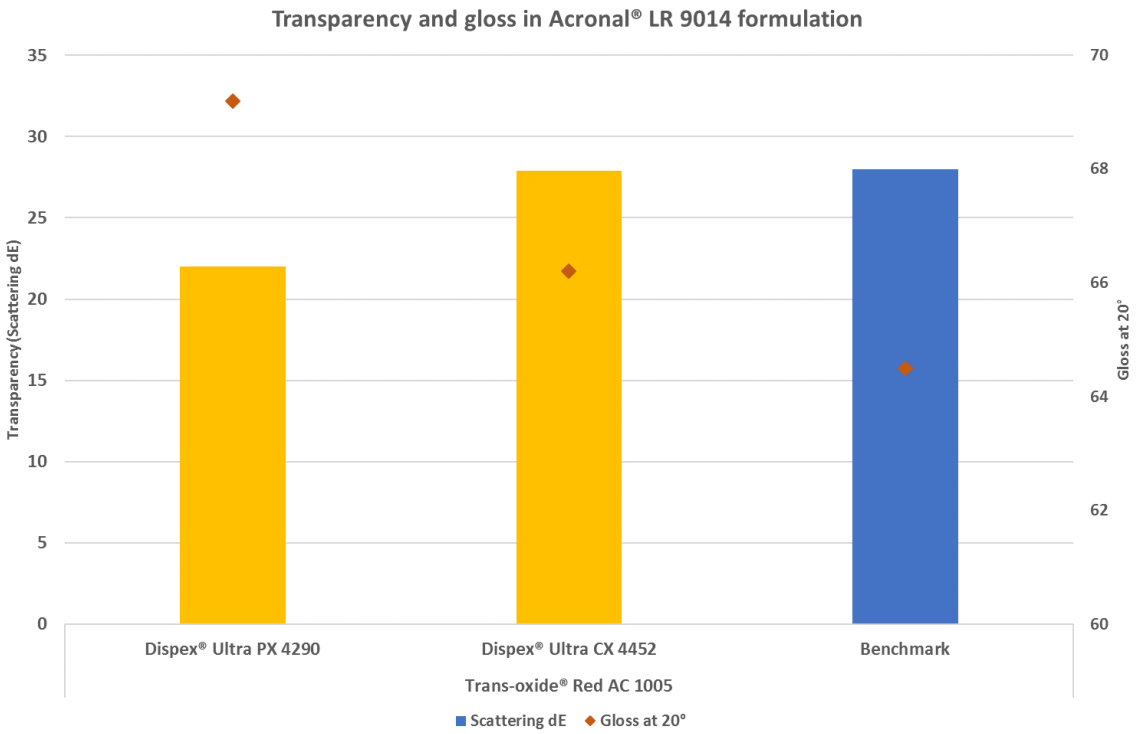
Dispex® Ultra CX 4452 shows better transparency vs benchmark with both pigments.

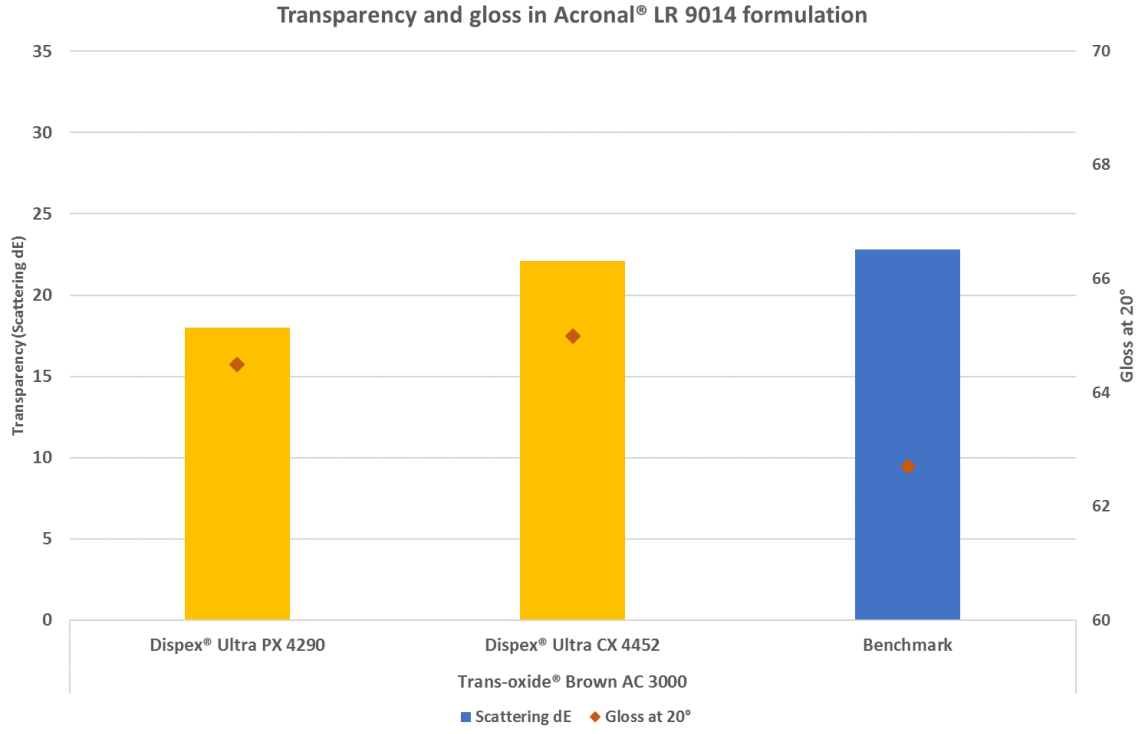
Dispex® Ultra PX 4290 exhibits excellent transparency over CX 4452 and benchmark.

BASF
We create chemistry

Dispex® Ultra CX 4452 & Dispex® Ultra PX 4290

Test carried out in Acronal® LR 9014 guide formulation (on carton)





*The lower the Scattering dE value, the better the transparency.

Measurement of Scattering dE proves the visual aspects of good transparency of Dispex® Ultra CX 4452 vs benchmark with Transoxid® Red AC 1005 and Brown AC 3000. Also very low value of Dispex® Ultra PX 4290 confirm the outstanding transparency with both pigments. Excellent gloss levels indicate very good compatibility.

Disclaimer

Safety

When handling the mentioned products, please comply with the advice and information given in the safety data sheets and observe protective and workplace hygiene measures adequate for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our products, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.