indovinya
YOUR NEEDS, OUR CHEMISTRY

Special Monomers

For High-Performance Coatings

Indovinya is the global specialty chemical and surfactants division of Indorama Ventures. We are the leading EO producer in the Americas, with operations across 10 countries and 15 manufacturing locations.

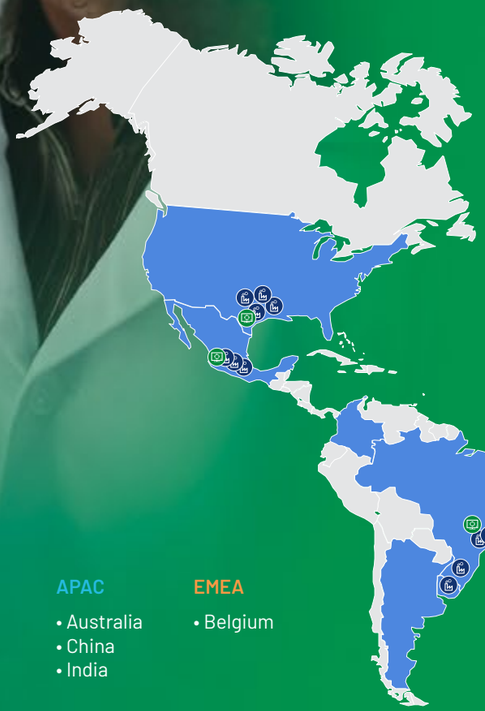
Indovinya is rooted in chemistry, powered by people, driven by innovation, and guided by sustainability and community impact.

#1
nonionic surfactants producer in the Americas

#1
Leading supplier in crop solutions in the Americas

#1
Supplier of Home Care Ingredients in the Americas

Footprint



AMERICAS
- Brazil
- Mexico
- USA
- Uruguay

APAC
- Australia
- China
- India

EMEA
- Belgium

Industries Units
R&D and Tech Centers

15 Industrial Units

7 Global R&D Centers

Presence in **10** Countries

Approximately **3,000** Employees

Advanced Polyol Technologies for High-Performance Coatings

Special monomers are multifunctional building blocks used in the formulation of high-performance coatings. These alkoxylated molecules are designed to enhance key properties such as mechanical strength, chemical resistance, flexibility, and adhesion. Unlike standard monomers, special monomers offer tailored functionalities that allow formulators to fine-tune the behavior of the resin system—whether in waterborne, solvent-based, or 2K technologies.

They are commonly used in applications where durability and performance are critical, such as automotive topcoats, wood coatings, packaging, industrial maintenance coatings, metal protection, and architectural finishes. By adjusting parameters like hydroxyl value, functionality, and molecular weight, special polyols can influence crosslink density, film formation, and compatibility with various curing agents (e.g., melamine, isocyanates).

This brochure presents a selection of Indorama Ventures' **ULTRATINT®** **polyols**, developed to meet diverse formulation needs. The performance tests included—such as viscosity behavior, impact resistance, hardness balance, adhesion, and MEK resistance—are examples of how these polyols behave in typical coating systems. However, our capabilities go far beyond these results.

We offer customized testing and development, working closely with our customers to evaluate polyols within their own formulations, substrates, and performance targets. Whether your goal is to increase solids content, improve film durability, or meet specific regulatory or sustainability requirements, our team is equipped to co-create solutions that deliver measurable value.

With deep technical expertise and flexible development capabilities, Indorama Ventures is your partner in designing next-generation monomers for coatings that perform, protect, and last.

Indorama Ventures' special monomers were designed to improve physicochemical properties such as adhesion to metal, impact and scratch resistance, chemical resistance and other features in coatings. Furthermore, it can be added as well to the final coating as to the resin, bringing flexibility to the formulator.

Features

- Easy to handle (Viscous liquid)
- 100% solids
- Versatility – suitable for Water-based and solvent-borne
- Package: bulk, drum, sample

Benefits

- **Balance of mechanical properties**
- **Better substrate and intercoat adhesion**
- **Improved flexibility**
- **Better hardness profile**
- **Increased chemical resistance**
- **Increased corrosion resistance**
- **The ULTRATINT® line is highly compatible with resins commonly applied in coatings compositions (e.g. polyester, acrylic, etc)**
- **The ULTRATINT® line is suitable for 2K system compositions (e.g. polyurethane, polyol-melamine, etc)**

Typical values and properties of Special Monomers

Properties	ULTRATINT® BP 60	ULTRATINT® TM 30
Appearance @ 25 °C	Clear Liquid	Clear Liquid
Viscosity, cP @ 25 °C	2500 – 5000	500 – 1000
Actives, wt%	~ 100	~ 100
Boiling Point, °C	320	300
Hydroxyl Value, mgKOH/g	~ 232	~ 610
Hydroxyl value, %	7.0	18.5
Functionality, eqOH/mol	2	3

Properties

Solubility

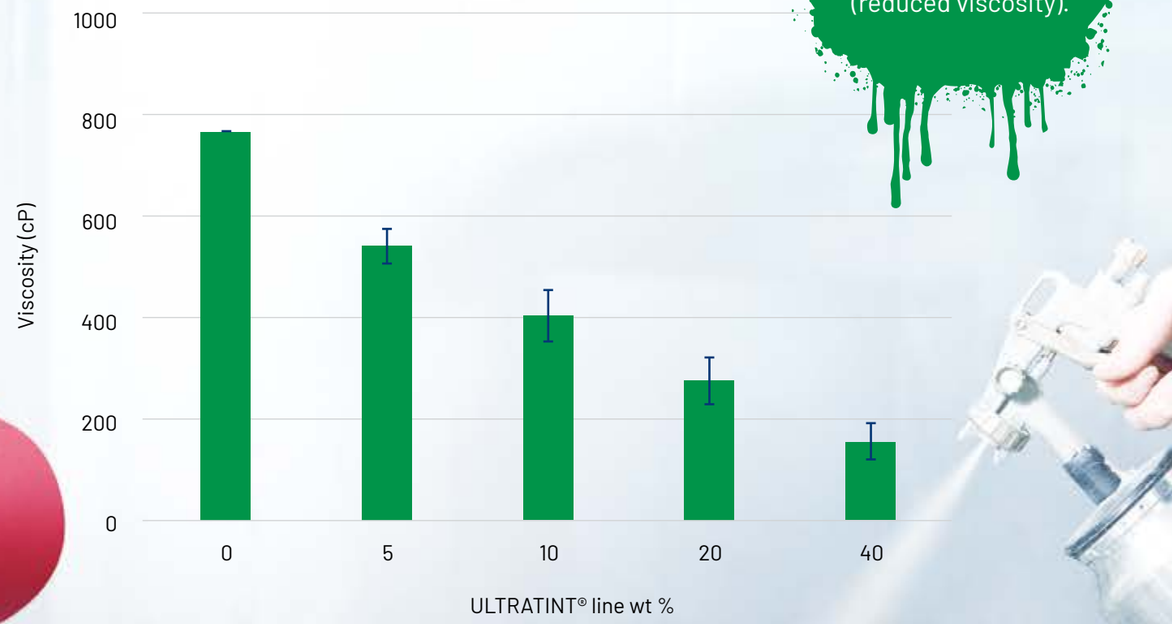
Solvent	ULTRATINT® BP 60	ULTRATINT® TM 30
Water	Dispersible	Clear soluble
Xylene	Dispersible	Dispersible
Butyl Glycol	Clear soluble	Clear soluble
s-butyl acetate	Clear soluble	Clear soluble
Methyl Ethyl Ketone	Clear soluble	Clear soluble

ULTRATINT® BP 60 and **ULTRATINT® TM 30** are compatible with water-based and solvent-borne systems, bringing versatility to formulators.

Properties

High-Solids Solvent-Borne Formulations

The addition of **ULTRATINT® BP 60** or **ULTRATINT® TM 30** allows high-solid formulations with combined features in coatings applications (reduced viscosity).



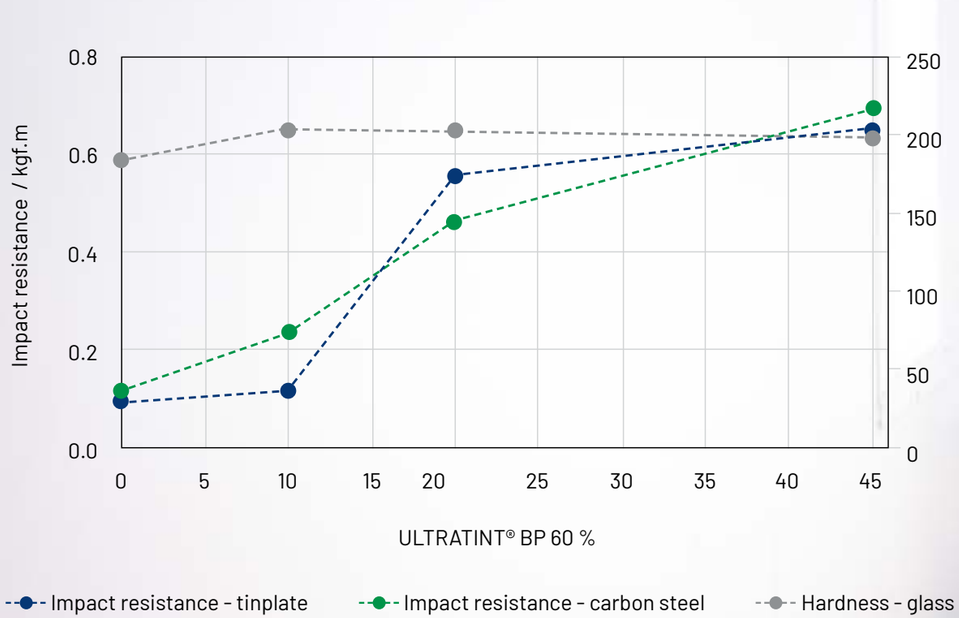
Polyester resin (%NV = 60.0 %, IOH = 5 %). Curing Agent: Methylated melamine (160g/eq). R (Melamine/OH) = 1.0. Average values for ULTRATINT® BP 60 and ULTRATINT® TM 30.

Performance Tests

Balancing Hardness and Impact Resistance ULTRATINT® BP 60

Achieving the right balance between hardness and impact resistance is essential for coatings designed to sustain high mechanical stress. Hardness contributes to scratch resistance, and surface integrity, while impact resistance ensures the coating can absorb mechanical stress without cracking or delaminating. Special Monomers play a key role in fine-tunning this balance by influencing the crosslink density, and improving hardness and flexibility simultaneously, targeting an optimized film formation and coating properties.

2K solvent based varnish composition



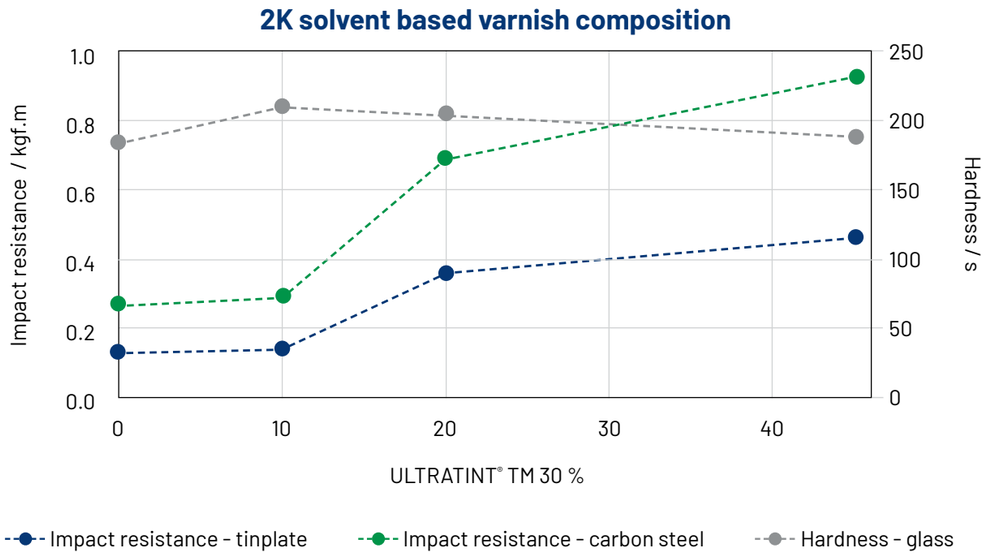
Polyester resin (%NV = 60.0 %, IOH = 5 %). Curing Agent: Aliphatic Polyisocyanate (NCO = 19.6%). R (NCO/OH) = 1.0. Methods: ASTM D4366 and ASTM D6905.

Progressive increase of impact resistance with gradual substitution of resin by **ULTRATINT® BP 60** without loosing the hardness of the film in tinplate or carbon steel substrates.

Coating composition	Substitution of resin by special monomer (%)	0	10	20	45
Solids (wt %)	**ULTRATINT® BP 60**	0	6	12	26
	Polyester resin	61	54	48	31
	Curing agent	39	40	41	43

Performance Tests

Balancing Hardness and Impact Resistance ULTRATINT® TM 30



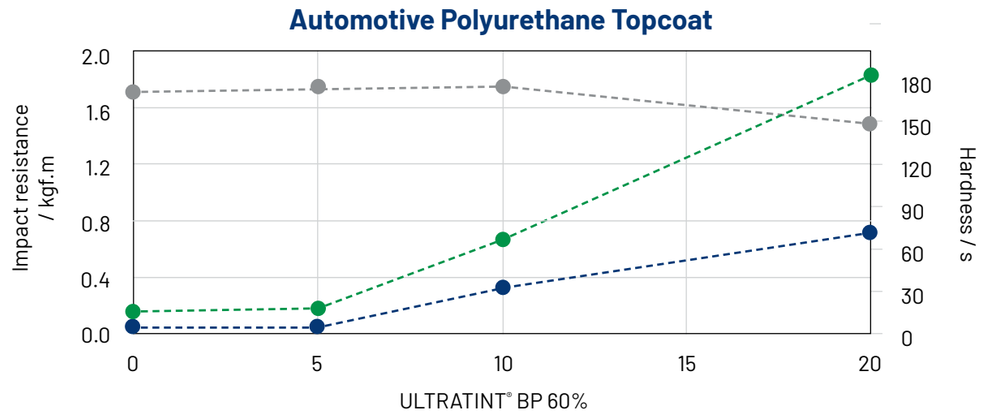
Polyester resin (%NV = 60.0 %, IOH = 5 %). Curing Agent: Aliphatic Polyisocyanate (NCO = 19.6%). R (NCO/OH) = 1.0. Methods: ASTM D4366 and ASTM D6905.

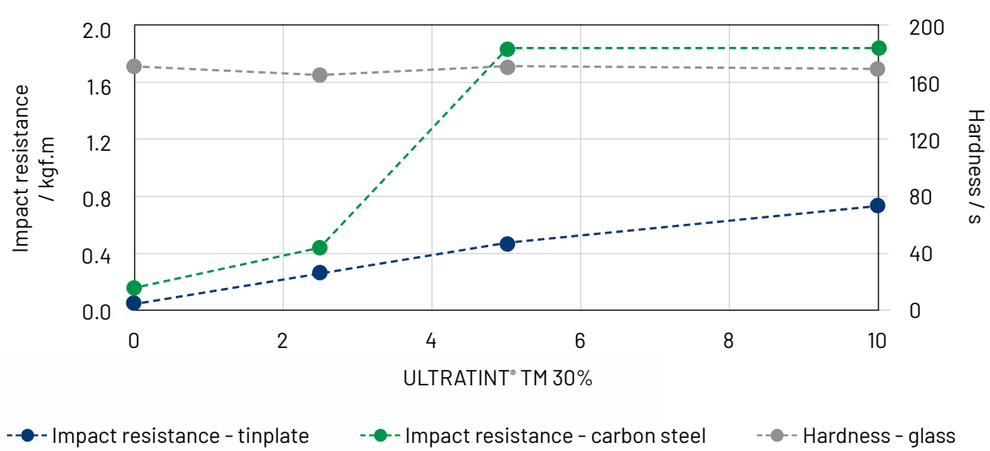
Coating composition	Substitution of resin by special monomer (%)	0	10	20	45
Solids (wt %)	**ULTRATINT® TM 30**	0	6	10	19
	Polyester resin	61	50	41	23
	Curing agent	39	44	49	58

Progressive increase of impact resistance with gradual substitution of resin by **ULTRATINT® TM 30** without loosing the hardness of the film in tinplate or carbon steel substrates.

Performance Tests

Balancing Hardness and Impact Resistance ULTRATINT® BP 60 and ULTRATINT® TM 30





PU automotive top coating. ASTM D4366 and ASTM D6905.

Progressive increase of impact resistance with gradual addition of **ULTRATINT® BP 60** or **ULTRATINT® TM 30** directly to a commercial automotive top coating formulation with hardness maintenance for films formed on tinplate or carbon steel substrates.

Performance Tests

ADHESION – ULTRATINT® BP 60

Adhesion refers to the ability of a coating to bond effectively to a substrate, ensuring long-term durability and resistance to peeling, flaking, or delamination. Special monomers contribute to improved adhesion by enhancing film formation, promoting chemical interaction with the substrate, and supporting cohesive strength within the coating matrix. Strong adhesion is essential for coatings exposed to mechanical stress, moisture, or temperature fluctuations—ensuring reliable performance across a wide range of surfaces and applications.

	Carbon steel		TINPLATE	
ULTRATINT® BP 60 (%)	**X CUT**	**# CUT**	**X CUT**	**# CUT**
0	4	Gr4	4	Gr2
5	2	Gr4	4	Gr2
10	2	Gr1	2	Gr1
20	2	Gr0	2	Gr1

Polyester resin (%NV = 60.0 %, IOH = 5 %). Curing Agent: Methylated melamine (160g/eq). R (Melamine/OH) = 1.0. ABNT NBR 11003.

Coating composition	Substitution of resin by special monomer (%)	0	5	10	20
Solids (wt %)	**ULTRATINT® BP 60**	0	3	7	13
	Polyester resin	68	64	60	53
	Curing agent	32	33	33	34

Low or no-failure results obtained by the substitution of 20% of resin by **ULTRATINT® BP 60**.

Performance Tests

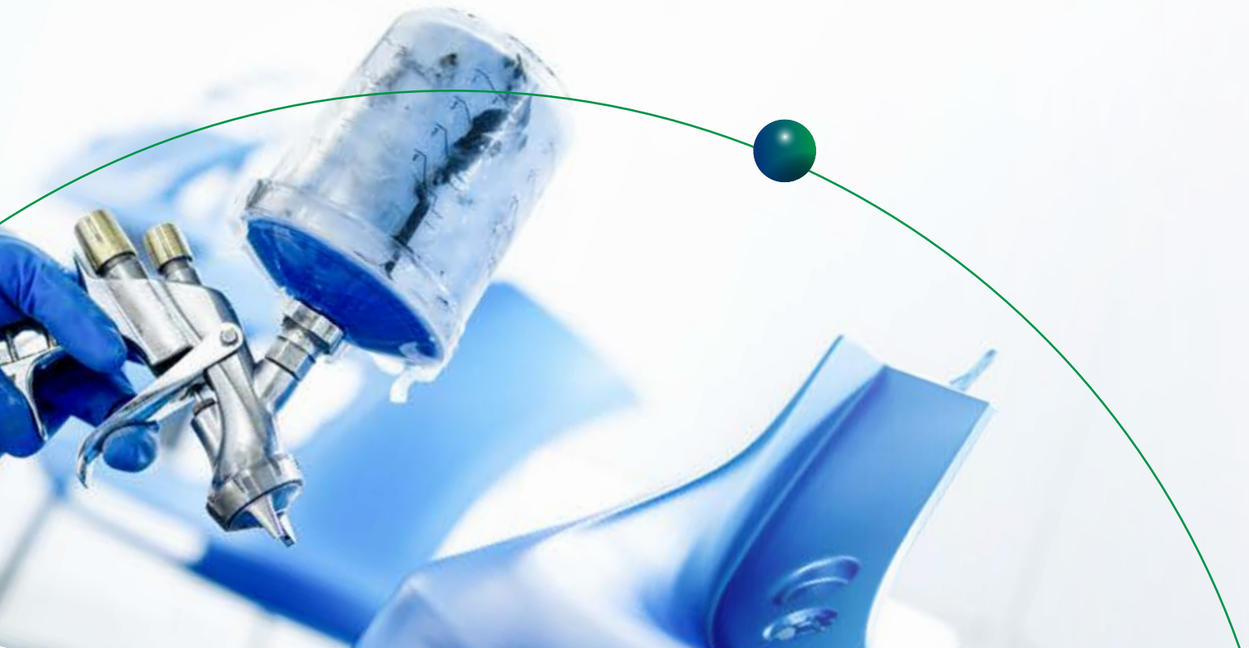
ADHESION – ULTRATINT® TM 30

	Carbon steel	
ULTRATINT® TM 30 %	**X CUT**	**# CUT**
0	4	Gr4
5	4	Gr4
10	2	Gr1
20	2	Gr1

Polyester resin (%NV = 60.0 %, IOH = 5 %). Curing Agent: Methylated melamine (160g/eq). R (Melamine/OH) = 1.0. ABNT NBR 11003.

Low failure results obtained by the substitution of 10% of resin by **ULTRATINT® TM 30**.

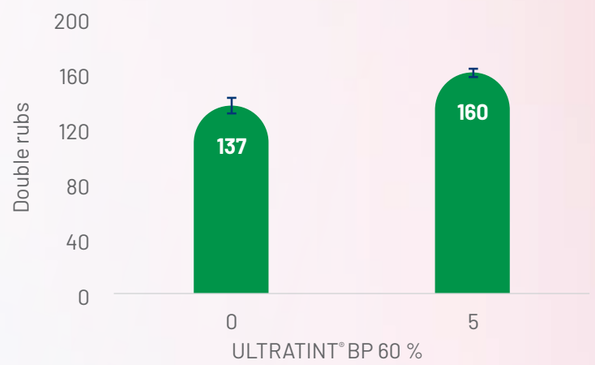
Coating composition	Substitution of resin by special monomer (%)	0	5	10	20
Solids (wt %)	**ULTRATINT® TM 30**	0	3	6	12
	Polyester resin	68	62	56	46
	Curing agent	32	35	38	42



Performance Tests

MEK RESISTANCE - ULTRATINT® BP 60

MEK resistance, typically evaluated using the double rub test, measures a coating's ability to withstand chemical attack—particularly from aggressive solvents like methyl ethyl ketone (MEK). This test simulates real-world exposure to cleaning agents or industrial chemicals. Special monomers contribute to improved crosslinking and film cohesion, which enhances resistance to solvent degradation.
High MEK resistance is a key indicator of coating durability, chemical resistance, and long-term performance in demanding environments such as metal protection, industrial maintenance, and automotive applications.



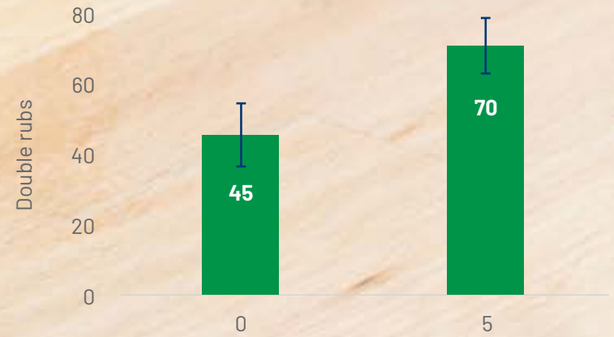
The substitution of 5 % of resin by **ULTRATINT® BP 60** in an acrylic polyurethane system increased the cycles supported until failure in the MEK resistance test.

Acrylic resin (%NV = 50.0 %, IOH = 2.4 %). Curing Agent: Aliphatic Polyisocyanate (NCO = 19.6%). R (NCO/OH)= 1.0. Method: ASTM D5402.

Coating composition	Substitution of resin by special monomer (%)	0	5
Solids (wt %)	**ULTRATINT® BP 60**	0	4
	Polyester resin	77	71
	Curing agent	23	25

Performance Tests

MEK RESISTANCE - ULTRATINT® TM 30



Polyester resin (%NV = 60.0 %, IOH = 5 %). Curing Agent: Methylated melamine (160g/eq). R (Melamine/OH) = 5.0. Method: ASTM D5402.

Coating composition	Substitution of resin by special monomer (%)	0	5
	ULTRATINT® TM 30	0	3
Solids (wt %)	Polyester resin	68	62
	Curing agent	32	35

The substitution of 5 % of resin by **ULTRATINT® TM 30** in a polyester melamine system increased the cycles supported until failure in the MEK resistance test.

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If you have to fine-tune the
performance of your coating
ULTRATINT® Series is what you need!
Contact us and request a sample.

AN INDISPENSABLE MEMBER OF INDORAMA VENTURES

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