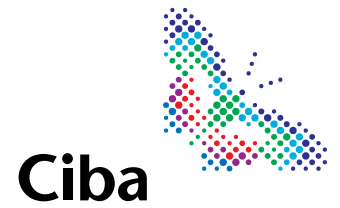


Ciba Specialty Chemicals



# ***Product Selection Guide***

## *for Transportation Coatings*



Coating Effects

Value beyond chemistry

Ciba® CINQUASIA®  
Ciba® CROMOPHTAL®  
Ciba® DISPEX®  
Ciba® GRAPHITAN  
Ciba® IRGACOLOR®

Ciba® IRGALITE®  
Ciba® IRGAZIN®  
Ciba® HORNA  
Ciba® HORNACHROME  
Ciba® HORNATHERM

Ciba® ORASOL®  
Ciba® RHEOVIS®  
Ciba® TINUVIN®  
Ciba® VISCALEX®

Ciba Specialty Chemicals trademarks (All trademarks mentioned are either property of or licensed to Ciba Specialty Chemicals and registered in relevant countries)

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## Introduction

This booklet provides a comprehensive list of the pigments and additives in the Ciba Specialty Chemicals product ranges for transportation coatings.

An overview is given of three major effects resulting from the use of our products: color, durability and dispersion and rheology control. Each effect is subdivided into actual product categories.

For more detailed information on specific applications and products please consult our local sales organizations.

To become up-to-date with the newest additions to our product line and for a complete overview of our products

in transportation coatings as well as in other applications, visit our website:

• [www.cibasc.com](http://www.cibasc.com)

▶ Product Finder

Ciba Specialty Chemicals provides an elaborate range of effects to the automotive industry in many different applications. To learn more about our partnership for automotive applications, you're invited to take a look at:

• [www.cibasc.com/automotive](http://www.cibasc.com/automotive)

Products, processes and services from Ciba Specialty Chemicals enable you to create effects that add performance, protection, color and strength to your coatings.

*Let us help you create effects to improve the quality of life!*

### Key to Symbols and Application Suitability

- ® Registered trademark
- Recommended
- Other potential uses



Ciba Specialty Chemicals is a member of:  
ETAD Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers

## Color

### Organic and Inorganic Powder Pigments

Ciba® IRGAZIN®, Ciba® CROMOPHTAL® and Ciba® CINQUASIA® products are high-performance organic and inorganic pigments that combine very good tinctorial properties with excellent fastness to light, weather, chemicals and solvents. They fulfill the requirements of the most critical applications.

The Ciba® IRGALITE® range consists of classical organic pigments, while Ciba® IRGACOLOR® pigments are inorganic pigments with outstanding resistance to heat, weather and chemicals.

Ciba® GRAPHITAN products are effect pigments that offer different styling possibilities in combinations with mica, aluminum and/or colored pigments, both in solvent- as well as in waterborne systems.

Product name	Chemical type CI No	CI Generic name <sup>(1)</sup>	OEM paints	Refinish paints	Waterborne base coat	Opaque <sup>(2)</sup>	Transparent	Density (g/cm <sup>3</sup> ) <sup>(3)</sup>	Oil absorption (g/100 g pig.) <sup>(4)</sup>	Surface area (m <sup>2</sup> /g) <sup>(5)</sup>	Key Product Features
IRGACOLOR Yellow 3GLM	Bismuth vanadate 771740	Pigment Yellow 184	●	●	●	●		5.9 30		11.0	Highly saturated, very greenish yellow, used as base pigment in opaque lead-free yellows
IRGACOLOR Yellow 14247	Bismuth vanadate 771740	Pigment Yellow 184	●	●	●	●		5.6 29		7.8	Brilliant greenish yellow, very high opacity, excellent light and weatherfastness
IRGAZIN Yellow 5GLT	Azomethine Cu-Complex 48042	Pigment Yellow 129	●	●			●	1.7 51		91	Transparent greenish yellow, especially suitable for "goldish" effect shades
IRGAZIN Yellow 2GLTE	Tetrachloroisindolinone 56284	Pigment Yellow 109	●	●	●	●		1.9 44		30	Very pure greenish yellow
IRGAZIN Yellow 2RLT	Tetrachloroisindolinone 56280	Pigment Yellow 110	●	●	●		●	1.8 40		49	Transparent reddish yellow, used as shading component for e.g. Biva and in effect shades
IRGAZIN Yellow 3RLTN	Tetrachloroisindolinone 56280	Pigment Yellow 110	●	●	●	●		1.8 34		27	Opaque, saturated reddish yellow
IRGAZIN DPP Orange RA	Diketo-pyrrolo-pyrrole –	Pigment Orange 73	●	●	●	●		1.3 51		21	Exceptionally highly saturated orange
IRGAZIN Orange 2037	Diketo-pyrrolo-pyrrole/Isoidoline –	–	○	●	○	●		1.6 55		18	Opaque, saturated orange particularly suited for lead replacement
IRGAZIN DPP Scarlet EK	Diketo-pyrrolo-pyrrole –	Pigment Red 255	●	●	●	●		1.4 41		15	Yellowish red with high opacity
CINQUASIA Scarlet RT-390-D	Quinacridone/Diketo-pyrrolo-pyrrole –	–	●	●	○		●	1.5 61		79	Very transparent and saturated scarlet especially suited for effect shades
IRGAZIN DPP Red BO	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	●	●		1.6 44		14	Medium-shade red with very good opacity and high saturation
IRGAZIN DPP Red BOX	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	●	●		1.6 47		16	Medium-shade red with very good opacity, high saturation and outstanding rheology
IRGAZIN DPP Red BTR	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	○		●	1.6 57		94	Unique transparent mid-shade red, opens up new color space in effect shades
CINQUASIA Red Y RT-759-D	Quinacridone 73900	Pigment Violet 19	●	●	●	●		1.5 59		20	Medium, bluish shade red
IRGAZIN Red 179	Perylene 71130	Pigment Red 179	●	●	●		●	1.7 44		53	High performance transparent bluish red with excellent dispersion & rheology in HS system
IRGAZIN Red 279	Perylene 71130	Pigment Red 179	●	●	●		●	1.7 41		54	High performance transparent bluish red with good dispersion characteristics but slightly yellowish shifted
IRGAZIN Red 379	Perylene 71130	Pigment Red 179	●	●	●		●	1.7 45		60	High performance transparent bluish red with good dispersion characteristics
IRGAZIN DPP Rubine TR	Diketo-pyrrolo-pyrrole –	Pigment Red 264	●	●	●		●	1.4 62		100	Transparent bluish red with high colour strength and very high saturation
IRGAZIN DPP Rubine FTX	Diketo-pyrrolo-pyrrole –	Pigment Red 264	●	●	○		●	1.4 60		84	Highly saturated transparent bluish red with outstanding rheology
IRGAZIN Red A2BN	Anthraquinone 65300	Pigment Red 177	●	●	●		●	1.5 49		62	Transparent bluish red especially suited for mica effect shades
IRGAZIN DPP Red Ultra Opaque	Diketo-pyrrolo-pyrrole –	Pigment Red 264	●	●	●	●		1.4 49		31	Ultra Opaque bluish red with high colour strength and high saturation

Product name	Chemical type CI No	CI Generic name <sup>(2)</sup>	OEM paints	Refinish paints	Waterborne base coat	Opaque <sup>(1)</sup>	Transparent	Density (g/cm <sup>3</sup> ) <sup>(3)</sup> Oil absorption (g/100 g pig.) <sup>(4)</sup>	Surface area (m <sup>2</sup> /g) <sup>(5)</sup>	Key Product Features
CINQUASIA Magenta RT-143-D	Quinacridone 73907	Pigment Red 202	●	●	●	●	●	1.6 52	55	Saturated blue-shade magenta with good dispersibility, well suited for metallic finishes
CINQUASIA Magenta RT-243-D	Quinacridone 73907	Pigment Red 202	●	●	●	●	●	1.6 46	42	Saturated blue-shade magenta well suited for effect shades
CINQUASIA Magenta B RT-343-D	Quinacridone 73907	Pigment Red 202	●	●	●	●	●	1.6 66	72	Saturated blue-shade magenta well suited as shading component for opaque bluish reds
CINQUASIA Magenta RT-355-D	Quinacridone –	–	●	●	●	●	●	1.6 65	80	Very transparent and saturated yellow-shade magenta with outstanding rheology
CINQUASIA Brilliant Red RT-380-D	Quinacridone/Diketo-pyrrolo-pyrrole –	–	●	●	○	●	●	1.6 55	79	Transparent blue-shade red for clean effect shades
CINQUASIA Violet R RT-101-D	Quinacridone 73900	Pigment Violet 19	●	●	●	●	●	1.5 75	81	Very transparent and highly saturated violet especially suited for effect shades
CINQUASIA Violet R NRT-201-D	Quinacridone 73900	Pigment Violet 19	●	●	●	●	●	1.5 45	64	Transparent violet pigment, highly saturated
IRGAZIN Blue A3RN	Indanthrone 69800	Pigment Blue 60	●	●	●	●	●	1.5 50	53	Highly transparent and very saturated reddish blue for opaque and effect shades
CROMOPHTAL Blue A3R	Indanthrone 69800	Pigment Blue 60	●	●	●	●	●	1.5 43	33	Highly transparent reddish blue suitable for opaque and effect shades
IRGAZIN Blue AFR	Cu-Phthalocyanine (alpha non floc.) 74160	Pigment Blue 15:2	●	●	●	●	●	1.6 55	58	Very clean red-shade blue with high color strength, good rheology and a red flop
IRGAZIN Blue X-3367	Cu-Phthalocyanine (alpha non floc.) 74160	Pigment Blue 15:2	●	●	●	●	●	1.5 51	58	Clean red-shade blue with good color strength
IRGAZIN Blue X-3485	Cu-Phthalocyanine (alpha non floc.) 74160	Pigment Blue 15:2	●	●	●	●	●	1.6 49	43	Tri-chlor blue with high color strength suitable for effect shades, shows a green flop
IRGAZIN Blue X-3627	Cu-Phthalocyanine (alpha non floc.) 74160	Pigment Blue 15:2	●	●	●	●	●	1.6 33	–	Green-shade alpha blue with good rheology, suitable for effect shades. Green flop
IRGALITE Blue GLNF	Cu-Phthalocyanine (beta non floc.) 74160	Pigment Blue 15:4	●	●	●	●	●	1.6 47	41	Very clean green-shade blue with high color strength, good rheology and a red flop
IRGALITE Green GLN	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 7	●	●	●	●	●	2.2 35	41	Good allround phthalogreen, suitable for opaque and effect shades
IRGAZIN Green 2180	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 7	●	●	●	●	●	2.2 42	44	High value allround phthalogreen, suitable for opaque and effect shades
IRGALITE Green 6G	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 36	●	●	●	●	●	2.8 24	31	Clean yellowish green with good dispersibility, suitable for opaque and effect shades
GRAPHITAN 7525	Graphite 77265	Pigment Black 10	●	●	●	●	●	2.7 –	20	Dark "silk" effect shade. Combinations possible with colored pigments, micas and metallics
GRAPHITAN 7700	Molybdenum disulfide 77770	Pigment Black 34	●	●	●	●	●	4.7 –	6	Light "silk" effect shade. Combinations possible with colored pigments, micas and metallics

Ciba Specialty Chemicals also has a complete range of Chrome Yellows and Molybdate Orange powder pigments (Ciba® HORNACHROME, Ciba® HORNA and Ciba® HORNATHERM) of which an overview can be found in the "Product Selection Guide for Liquid Industrial Coatings, Coil Coatings and Marine Coatings".

<sup>(1)</sup> **Colour Index.** Names and numbers refer to entries in the Colour Index International, Society of Dyers and Colourists, Bradford, England, 2000.

<sup>(2)</sup> **Opacity/Transparency.** The opacity/hiding power was assessed in full shade based on the contrast over a black/white Moresst paper.

<sup>(3)</sup> **Density.** Measured in accordance to ISO 787/X and quoted in g/cm<sup>3</sup> at 20°C.

<sup>(4)</sup> **Oil Absorption.** Measured in accordance to ISO 787/V; DIN 53199. Determined by the spatula method consisting of regular mixing of drops of oil onto powder pigment until wetting is complete. It is expressed as grams of oil per 100 grams of pigment.

<sup>(5)</sup> **Surface Area (Specific Surface).** Determined by the "BET" nitrogen adsorption method and is expressed in m<sup>2</sup>/g. (Ref. Brunauer, Emmet, Teller, "Journal Amer. Chem.Soc." 57, 1954.)

## Special Dyes

Ciba® ORASOL® dyes are soluble in organic solvents and exhibit particularly good solubility in alcohols, ketones and esters. Ciba® ORASOL® dyes are used in flamboyant shades mainly for motorcycles, bicycles and helmets.

Product name	Chemical type CI No    CI Generic name	Density (g/cm <sup>3</sup> )	Bulking volume (l/kg)( <sup>1</sup> )	pH	Decomposition temp. (°C)( <sup>2</sup> )	Solubility at 20°C (g/liter solvent)( <sup>3</sup> )					
						Methanol Ethanol	Isopropanol Methyl acetate	Ethyl acetate Butyl acetate	Methyl ethyl ketone Methyl isobutyl ketone	Ethanol 95%: Toluene 70:30 Ethanol 95%: Ethyl acetate 50:50	Methyl ethyl ketone: Toluene 60:40
ORASOL Yellow 2GLN	1:2 Chrome complex Solvent Yellow 88	1.27	2.0	7.1	290	900 300	50 100	100 100	1000 100	1000 700	800
ORASOL Yellow 2RLN	1:2 Cobalt complex Solvent Yellow 89	1.34	1.7	7.1	260	350 700	700 600	150 50	900 250	1000 1000	500
ORASOL Orange G	1:2 Cobalt complex Solvent Orange 11	1.42	3.2	7.7	230	50 50	25 200	300 0	250 400	150 150	50
ORASOL Brown 2RL	1:2 Chrome complex Solvent Brown 43	1.51	2.0	4.9	–	300 50	50 50	25 0	600 250	150 250	400
ORASOL Red 2B	1:2 Chrome complex Solvent Red 233	1.31	2.0	6.5	200	1000 350	50 250	800 150	1000 900	900 900	900
ORASOL Blue BL	Anthraquinone Solvent Blue 136	1.20	1.8	7.9	215	900 700	200 25	25 50	300 150	700 500	450
ORASOL Blue GN	Phthalocyanine Solvent Blue 67	1.43	2.7	8.0	300	150 250	500 50	25 0	400 150	400 350	450
ORASOL Black RLI	1:2 Chrome complex Solvent Black 29	1.30	2.2	7.2	240	1000 900	25 100	50 25	800 400	700 800	500

(<sup>1</sup>) **Bulking Volume.** The value in l/kg serves as an indication of the average aptial requirement. However, in practice the tamped volume of a pigment can be influenced by transport and storage conditions. Assessed in accordance with ISO R 787/11 981.

(<sup>2</sup>) **Decomposition Temperature.** The start of decomposition is measured by DTA (differential thermal analysis), the temperature is increased by 20°C/min.

(<sup>3</sup>) **Solubility.** Measured in accordance to ISO 7579; DIN 55976. The solubility values are given in g dye/liter solvent at 20°C. Variation ±10%.



## Durability

The Ciba® TINUVIN® range consists of light stabilizers with different chemistries. The range contains two types of light stabilizers: Ultraviolet Light Absorbers (UVA) and Hindered-Amine Light Stabilizers (HALS). UVA filter harmful UV light and prevent mainly discoloration and delamination of coatings. HALS trap free radicals once they are formed and are mainly effective to retain surface properties such as gloss and prevent cracking and chalking of paints. HALS and UVA show when used in combination a synergistic effect. Synergistic "ready-to-use" blends of UVA and HALS offer the simplicity of a single raw material. These blends are formulated in the most common ratios for high-performance applications.

Our extended product range enables to offer solutions for nearly all types of coatings technologies, including solvent-borne, waterborne, UV curable systems.

Product name Chemical type	Key Product Features	Physical form Liquid: L, Solid: S	% active component	Volatility/thermal stability (active substance)	Molecular weight (g/mol) <i>Equivalent weight</i>	Basicity pK <sup>b</sup>	Melt point (°C) <i>Boiling point (°C)</i>	Density at 20°C (g/cm³)	Viscosity at 20°C (mPa.s Brookfield 20 rpm)	Solubility/Miscibility at 20°C (g/100 g)						
										Mineral spirit <i>Toluene</i>	Xylene <i>Methyl isobutyl ketone</i>	Methyl amyl ketone <i>Methyl ethyl ketone</i>	Butyl acetate <i>Ethyl acetate</i>	Ethyl cellosolve acetate <i>Butyl cellosolve acetate</i>	Butyl carbitol <i>Texanol*</i>	Water

### Ultraviolet Light Absorbers (UV Absorbers)

TINUVIN 328 Benzotriazole	Volatile solid for use in air-dried cured systems	S	100	volatile above 130°C	351.5	–	80-88	–	1.17	n/a	14 33	34 27	25 14	13 16	14 25	34 10	<0.01
TINUVIN 384-2 Benzotriazole	Very low color liquid for solvent-borne coatings, especially refinish	L	95 <sup>a</sup>	non-volatile	451.6	–	n/a	–	1.07	3200	>50 >50	>50 >50	>50 >30	>30 >30	– >50	>50 >30	<0.01
TINUVIN 928 Benzotriazole	Highly soluble solid for solvent-borne and powder coatings	S	100	non-volatile	441.6	–	109-113 440	–	1.14	n/a	–	–	30 –	>30 30	10 9.5	– –	<0.01
TINUVIN 1130 Benzotriazole	Easily dispersed in waterborne systems	L	100	non-volatile	–	–	n/a 166	–	1.17	7400	– >50	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	<0.01
TINUVIN 400 Triazine	High-performance liquid with excellent light stability	L	85 <sup>b</sup>	non-volatile	647	–	n/a	–	1.07	–	– >50	>50 >50	>50 >50	– –	>50 >50	>50 >50	<0.01
TINUVIN 405 Triazine	High-performance solid designed for powder coatings	S	100	non-volatile	584	–	74-77 >280	–	1.18 at 22°C	–	–	20 –	–	25 –	–	–	<0.01

### Hindered-Amine Light Stabilizers (HALS)

TINUVIN 123 Hindered aminoether	Nonbasic HALS for non-basic acid-catalyzed systems	L	100	3% at 175°C 12% at 200°C	737 369	9.6	n/a 367	–	0.97	3000	>50 >50	>50 >50	>50 >50	>50 >50	– –	– –	<0.01
TINUVIN 292 Hindered amine	Versatile HALS for solvent- and waterborne systems	L	100	230°C	509 252	5.5	n/a >350	–	0.99	400	>50 >50	>50 >50	>50 >50	>50 >50	– –	>50 >50	<0.01
TINUVIN 292 HP Hindered amine	Very low color TINUVIN 292 for refinish	L	100	230°C	509 252	5.5	n/a >350	–	0.99	400	>50 >50	>50 >50	>50 >50	>50 >50	– –	>50 >50	<0.01
TINUVIN 152 Reactable Hindered aminoether	Low basicity, non-migratory, fully compatible with polar S/B and hydroxyl functional N-O-R type HALS	S	100	Very low volatile	757 378	7.4 9.4	83-90 n.a.	–	1.08	n.a.	n.a.	>70	>75	>70	n.a.	n.a.	<0.01

### Synergistic UVA / HALS Blends

TINUVIN 5050 Benzotriazole/HALS	Blend ratio 1:1	L	100	non-volatile	–	–	n/a	–	1.03	900	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	<0.01
TINUVIN 5060 Benzotriazole/HALS	Blend ratio 1:1	L	100	non-volatile	–	–	n/a	–	0.98	10000	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	<0.01
TINUVIN 5151 Benzotriazole/HALS	Blend ratio 2:1	L	100	non-volatile	–	–	n/a	–	1.10	7000	50 >50	50 >50	50 >50	50 >50	50 >50	50 >50	<0.01

### Solvents

<sup>a</sup> 1-methoxy-2-propyl acetate

<sup>b</sup> 1-methoxy-2-propanol

<sup>c</sup> xylene

\*Registered Trademark, Eastman Kodak Company

## Dispersion and Rheology Control

### Polymer Specialties

The Ciba® DISPEX® range consists of dispersants designed for stable, non-foaming dispersions of inorganic pigments and fillers for use in waterborne coatings.

Product name	Chemical type	Physical form	Average molecular weight (g/mol)	% active content	pH	Neutralizing agent	Density at 20°C (g/cm <sup>3</sup> )
DISPEX A40	Ammonium polyacrylate	liquid	4000–5000	40	8.0	NH <sub>3</sub>	1.16
DISPEX N40	Sodium polyacrylate	liquid	4000–5000	40	7.5	NaOH	1.30

Ciba® VISCALEX® and Ciba® RHEOVIS® products are thickening and rheological control agents for use in waterborne coatings. They provide consistent and reliable rheology control during manufacture of paint and coatings and are more cost-effective than hydroxyl ethyl cellulose (HEC) modifiers.

Product name	Chemical type	Physical form	Rheology mechanism *	% active content	pH	Brookfield viscosity (mPa.s)	Density at 20°C (g/cm <sup>3</sup> )
VISCALEX HV30	Polyacrylate polymer	liquid	ASE	30	3.5	5	1.05
RHEOVIS 112	Polyacrylate polymer	liquid	HASE	40	3.5	5	1.05
RHEOVIS 132	Polyacrylate polymer	liquid	HASE	40	3.5	5	1.05
RHEOVIS 152	Polyacrylate polymer	liquid	HASE	40	3.5	5	1.05

\* ASE: Alkali Swellable Emulsions

HASE: Hydrophobically modified Alkali Swellable Emulsions

## *Dispersants, Dispersing Resins, Slip and Levelling Agents, Defoamers*



### **It's what you add that makes the difference**

In over 80 countries worldwide EFKA's additives are relied on daily. Both large and small manufacturers in the coatings, plastics and graphic art industries know that they can enhance their product performance and reputation by using EFKA additives.

EFKA has become an automatic choice when using additives for coatings. EFKA's expertise lies in incorporation and stabilization of solids in liquids at room temperature and in developing products that influence surface tension.

The additives for the coatings industry can be classified into grinding resins, defoamers, high molecular weight dispersants, wetting and dispersing additives, slip and levelling agents and other specialties.

For the graphic arts industry we provide additives for flexo, gravure and ink jet printing methods. Our products play an important part in a wide range of consumer products from credit cards, lottery tickets, food packaging to wallpaper and auto instrument panels.

EFKA has defoamers, dispersants as well as wetting, slip and levelling additives for the graphic arts industry.

Our additives are being used in the plastics industry as well: from floor coverings to buttons and automotive parts. Composites and gel coats, polyvinyl chloride plastisols, plasticizer pastes and polyurethanes, all with their own characteristics. And all require an additive that is very specific.

And for the plastics industry EFKA offers, amongst others, additives for wetting and dispersing, air release, levelling, anti-separation and other specialties.

EFKA is a member of the Ciba Specialty Chemicals Group. This ensures that your business gets to benefit from the considerable expertise available. That's why we are so confident that we can help you to meet any demands in the industry that you might face.

If you would like to know more, please request the complete set of product information including their technical specifications. You can also find this information on the website: [www.efka.com](http://www.efka.com). Should you have a question about a product not included in this range of products, please contact EFKA. Our technical specialists will help you find the right answer.

### **Head Office**

Ciba Specialty Chemicals Inc. trademarks

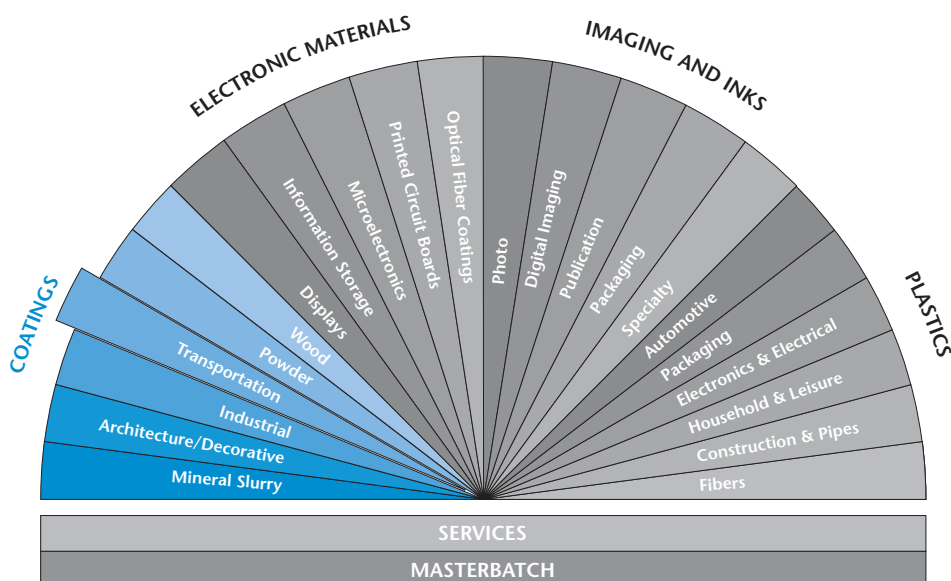
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## Ciba Specialty Chemicals Worldwide

We do business in more than 120 countries and have sales representatives and technical expertise available for our customers around the world.

To find the representative nearest you, visit [www.cibasc.com/find](http://www.cibasc.com/find)



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Please note that products may differ from country to country. If you have any queries, kindly contact your local Ciba Specialty Chemicals representative. Further information at website: <http://www.cibasc.com/coatingeffects>



Ciba Specialty Chemicals is a member of:  
Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers

