

Ciba Specialty Chemicals



Product Selection Guide

*for Liquid Industrial Coatings,
Coil Coatings and Marine Coatings*



Coating Effects

Value beyond chemistry

Ciba® CHIMASSORB®
Ciba® CINQUASIA®
Ciba® CROMOPHTAL®
Ciba® DAROCUR®
Ciba® DISPEX®
Ciba® GLASCOL®
Ciba® GRAPHITAN®
Ciba® EFKA®
Ciba® FILAMID®
Ciba® FILESTER®

Ciba® FILOFIN®
Ciba® HORNA®
Ciba® HORNACHROME®
Ciba® HORNATHERM
Ciba® IRGACOLOR®
Ciba® IRGACURE®
Ciba® IRGAFOS®
Ciba® IRGAGUARD®
Ciba® IRGALITE®
Ciba® IRGANOX®

Ciba® IRGAPHOR®
Ciba® IRGAPLASTOL®
Ciba® IRGAROL®
Ciba® IRGASPERSE®
Ciba® IRGAZIN®
Ciba® LIGNOSTAB®
Ciba® MICRANYL®
Ciba® MICROLEN®
Ciba® MICROLITH®
Ciba® MICROSOL®

Ciba® ORACET®
Ciba® ORASOL®
Ciba® RHEOVIS®
Ciba® TINOPAL®
Ciba® TINUVIN®
Ciba® UNISPERSE®
Ciba® UVITEX®
Ciba® VISCALEX®

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Introduction

This booklet provides a comprehensive list of the pigments and additives from the Ciba Specialty Chemicals ranges for liquid industrial coatings, coil coatings and marine coatings.

The products are divided into seven main categories: pigments, light stabilizers, antioxidants, corrosion inhibitors, optical brighteners, algicides and polymer specialties. The pigment classes are subdivided into organic and inorganic pigments, chrome yellow and molybdate orange pigments, pigment preparations and special dyes.

Suitable fields of application are indicated next to each product, but it must be stressed that these are only intended as a general guide.

For more detailed information on specific applications and product control please consult our marketing departments or local sales organizations.

Further technical product information and details on use in food packaging materials, toys and other consumer goods (EHS data) are available on our Internet site at:

• www.cibasc.com

▶ Product Search

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 that 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

Pigments

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. Ciba® IRGACOLOR® pigments are inorganic pigments with outstanding resistance to heat, weather and chemicals.

Product name	Chemical type		Industrial coatings		Coil coatings	Density (g/cm ³) Oil absorption (g/100 g pig.)	Surface area (m ² /g)	Heat stability (°C)/ Overpaint resistance	Acid-fastness/ Alkali-fastness	Weather fastness			Opacity (med = medium)	Color strength (1/25 ISD) (g pigment/100 g TiO ₂)
	CI No	CI Generic name	Conventional solventborne coatings	Waterborne coatings						Full shade	1/1 ISD	1/25 ISD		
IRGACOLOR® Yellow 3GLM	Bismuth vanadate 771740	Pigment Yellow 184	●	●	●	5.6 27	11	200 5	4-5 5	4-5	4-5	4-5	high	11.9
IRGAZIN® Yellow 2093	Bismuth vanadate 771740	Pigment Yellow 184	●	●	●	5.9 27	9.6	200 5	4-5 5	4-5	4-5	4-5	high	11.9
IRGAZIN® Yellow 2094	Bismuth vanadate 771740	Pigment Yellow 184	●	●	●	6.1 33	9.1	200 5	4-5 5	4-5	4-5	4-5	high	8.9
CROMOPHTAL® Yellow 8GN	Azo condensation 20037	Pigment Yellow 128	●	●	○	1.5 59	85	200 5	5 5	4-5	4-5	4	low	1.9
IRGAZIN® Yellow 2GLTE	Tetrachloroisindolinone 56284	Pigment Yellow 109	●	●	○	1.9 44	30	200 5	5 5	4	4	4	med	2.9
IRGALITE® Yellow GO	Arylamide 11741	Pigment Yellow 74	●	●	●	1.3 37	20	150 2-3	5 4-5	4-5	4-5	4	high	1.5
IRGAZIN® Yellow 2RLT	Tetrachloroisindolinone 56280	Pigment Yellow 110	●	●	●	1.8 40	49	200 5	5 5	4-5	4-5	5	low	1.8
IRGAZIN® Yellow 3RLTN	Tetrachloroisindolinone 56280	Pigment Yellow 110	●	●	●	1.8 34	27	200 5	5 5	4-5	4-5	5	med	2.6
IRGAZIN® DPP Orange RA	Diketo-pyrrolo-pyrrole –	Pigment Orange 73	●	●	●	1.3 51	21	200 5	5 5	4-5	4-5	4-5	med	4.7
IRGAZIN® Orange 2037	Diketo-pyrrolo-pyrrole/isoindoline –	–	●	○	○	1.6 55	18	200 5	5 5	5	4-5	3	high	4.1
CROMOPHTAL® Orange 2G	Tetrachloroisindolinone 11265	Pigment Orange 61	●	●	●	1.7 39	53	200 5	5 5	4-5	4-5	3-4	med	2.4
IRGAZIN® DPP Scarlet EK	Diketo-pyrrolo-pyrrole –	Pigment Red 255	●	●	○	1.4 41	15	200 5	5 5	4-5	4-5	4-5	high	2.3
IRGALITE® Red 3RS	BON Arylamide 12370	Pigment Red 112	●	●	●	1.5 45	24	150 1	5 4	4-5	3-4	3	med	1.0
IRGAZIN® DPP Red BO	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	●	1.6 44	14	200 5	5 5	5	5	4-5	high	1.8
IRGAZIN® Red 2031	Diketo-pyrrolo-pyrrole –	–	●	●	●	1.4 47	25	200 5	5 5	3-4	3	3	high	1.1
IRGAZIN® Red 2030	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	●	1.6 42	27	200 5	5 5	4-5	4	4	med	1.2
IRGAZIN® Red 2029	Diketo-pyrrolo-pyrrole/Azo –	–	●	●	●	1.6 46	18	180 5	4-5 5	4-5	3-4	3	med	1.4
IRGAZIN® Red 2027	Diketo-pyrrolo-pyrrole/Azo –	–	●	●	●	1.6 50	27	200 5	4-5 4-5	4-5	3-4	3	med	1.2
CROMOPHTAL® Red BRN	Azo condensation 20735	Pigment Red 144	●	●	○	1.5 55	34	200 5	5 5	5	4	3-4	med	1.4
IRGALITE® Red FBL	Azo 2B-toner (Mn) 15865:4	Pigment Red 48:4	●	●	●	1.6 63	54	200 4-5	4-5 1	4-5	4	3	low	1.0
CINQUASIA® Red Y RT-759-D	Quinacridone 73900	Pigment Violet 19	●	●	●	1.5 59	20	200 5	5 5	5	5	5	high	2.4
CINQUASIA® Red B NRT-796-D	Quinacridone 73900	Pigment Violet 19	●	●	●	1.5 46	37	200 5	5 5	5	5	4-5	med	2.0
IRGAZIN® DPP Rubine TR	Diketo-pyrrolo-pyrrole –	Pigment Red 264	●	●	●	1.4 62	100	200 5	5 5	5	5	5	low	0.9
CROMOPHTAL® Red A3B	Anthraquinone 65300	Pigment Red 177	●	●	○	1.4 50	113	200 5	5 5	4-5	4	3-4	low	1.1

Product name	Chemical type		Industrial coatings		Coil coatings	Density (g/cm ³) Oil absorption (g/100 g pig.)	Surface area (m ² /g)	Heat stability (°C) Overprint resistance	Acid-fastness/ Alkali-fastness	Weather fastness			Opacity (med = medium)	Color strength (1/25 ISD) (g pigment/100 g TiO ₂)
	CI No	CI Generic name	Conventional solventborne coatings	Waterborne coatings						Full shade	1/1 ISD	1/25 ISD		
CINQUASIA® Magenta B RT-343-D	Quinacridone 73907	Pigment Red 202	●	●	●	1.6 66	72	200 5	5	5	5	4-5	med	1.6
CINQUASIA® Magenta RT-355-D	Quinacridone -	Pigment Red 42	●	●	○	1.6 65	80	180 5	5	4-5	4-5	4-5	low	1.4
IRGAZIN® Magenta 2012	Quinacridone -	Pigment Red	●	●	○	1.4 73	60	200 5	5	4-5	4-5	4-5	med	1.4
IRGALITE® Bordeaux CM	BON Toner (Mn) 15860:2	Pigment Red 52:2	●			1.7 67	70	150 5	2 4	4	3-4	2-3	low	1.0
CINQUASIA® Violet R NRT-201-D	Quinacridone 73900	Pigment Violet 19	●	●	●	1.5 45	64	200 5	5	5	4-5	4-5	high	1.3
CROMOPHTAL® Violet GT	Dioxazine 51319	Pigment Violet 23	●	●	○	1.5 49	58	200 5	5	4-5	4-5	4-5	low	0.6
CROMOPHTAL® Blue A3R	Indanthrone 69800	Pigment Blue 60	●	●	●	1.5 43	33	200 5	5	5	5	5	low	1.1
IRGAZIN® Blue 2234	Cu-Phthalocyanine (α non-flocc) 74160	Pigment Blue 15:2	●	●	○	1.5 51	58	200 5	5	5	5	5	high	0.7
IRGALITE® Blue BSNF	Cu-Phthalocyanine (α non-flocc) 74160	Pigment Blue 15:2	●	●	●	1.6 55	58	200 5	5	5	5	5	med	0.5
IRGALITE® Blue PG	Cu-Phthalocyanine (β) 74160	Pigment Blue 15:3	●	●	●	1.6 45	57	200 5	5	5	5	5	med	0.7
IRGALITE® Blue GLNF	Cu-Phthalocyanine (β non-flocc) 74160	Pigment Blue 15:4	●	●	●	1.6 55	51	200 5	5	5	5	5	med	0.6
IRGALITE® Green GLN	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 7	●	●	●	2.2 35	41	200 5	5	5	5	5	med	1.4
IRGAZIN® Green 2180	Cu-Phthalocyanine (halogenated) 74265	Pigment Green 7	●	●	●	2.2 42	44	200 5	5	5	5	5	med	1.6
IRGALITE® Green 6G	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 36	●	●	●	2.8 24	31	200 5	5	5	5	5	med	1.9
CROMOPHTAL® Brown 5R	Azo condensation 20060	Pigment Brown 23	●	●	●	1.6 58	46	200 5	5	4-5	4-5	4	low	2.0
Other products														
IRGAZIN® Yellow 5GLT	Azomethine Cu-complex 48042	Pigment Yellow 129	○		○	1.7 51	91	transparent greenish yellow suitable for effect shades						
CROMOPHTAL® Yellow 3G	Azo condensation 20710	Pigment Yellow 93	○	○		1.5 50	75	mid-shade yellow for external can coating						
IRGALITE® Yellow F4G	Arylamide 11745	Pigment Yellow 111	○	○		1.5 43	12	classical opaque yellow for deep-shade applications						
CROMOPHTAL® Yellow GR	Azo condensation 20034	Pigment Yellow 95	○	○		1.4 68	73	high-performance mid-shade yellow suitable for internal can coating						
IRGALITE® Yellow BAW	Diarylide m-xylylide 21100	Pigment Yellow 13	○	○		1.5 59	4.5	classical high intrinsic strength yellow for deep-shade applications						
CROMOPHTAL® Yellow 2RLTS	Tetrachloroisindolinone 56280	Pigment Yellow 110	○	○	○	1.7 35	8.6	transparent red-shade yellow used as shading component and effect shades						
IRGALITE® Orange MOR	Dianisidine Orange 21160	Pigment Orange 16	○	○		1.4 48	22	classical, high-opacity red-shade orange for deep-shade applications						
CROMOPHTAL® Orange GP	Benzimidazolone 12760	Pigment Orange 64	○	○		1.6 56	28	mid-performance orange for mid- to pale-shade applications						
IRGALITE® Orange P	Diarylide pyrazolone 21110	Pigment Orange 13	○	○		1.4 63	36	classical orange for deep-shade applications						
IRGALITE® Orange F2G	Diarylide pyrazolone 21115	Pigment Orange 34	○	○		1.4 61	56	classical orange for deep-shade applications						
CROMOPHTAL® DPP Coral Red C	Diketo-pyrrolo-pyrrole 561050	Pigment Red 255	●	●	○	1.4 59	10	high-performance yellow-shade red especially for pale shade applications						
CROMOPHTAL® Scarlet RN	Azo condensation 20730	Pigment Red 166	●	●	○	1.5 55	29	mid-shade red for mid- to pale-shade applications						
CINQUASIA® Scarlet RT-788-D	Quinacridone 73900/73906	Pigment Red 207	○	○	○	1.5 33	21	high-performance pigment for clean pale-shade applications						
IRGALITE® Red PRR	Naphthol Red 12085	Pigment Red 4	○	○		1.6 45	24	classical pigment for deep-shade						
IRGALITE® Red 2BY	Azo 2B-toner (Sr) 15865:3	Pigment Red 48:3	○			1.8 51	36	classical pigment for deep-shade						
IRGAZIN® DPP Red BOX	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	●	1.6 47	16	high-performance red with outstanding rheology and improved gloss for opaque shades						

Product name	Chemical type CI No	CI Generic name	Industrial coatings			Density (g/cm ³)/ Oil absorption (g/100 g pig.)	Surface area (m ² /g)	
			Conventional solventborne coatings	Waterborne coatings	Coil coatings			
CROMOPHTAL® DPP Red BP	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254	●	●	○	1.7 40	29	high-performance red for mid- to pale-shade applications
IRGALITE® Red C2B	Azo 2B-toner (Ca) 15865:2	Pigment Red 48:2	○			1.7 52	49	classical pigment used as shading component for molybdate orange in deep-shade applications
CINQUASIA® Red B RT-195-D	Quinacridone 73900/73907		○	●		1.5 51	53	high-performance pigment for all shade depths
CINQUASIA® Red Y RT-859-D	Quinacridone 73900	Pigment Violet 19	○			1.5 68	21	high-performance yellow-shade red with excellent rheology
IRGAZIN® DPP Rubine FTX	Diketo-pyrrolo-pyrrole –	Pigment Red 264	●	●	○	1.4 60	83	high-performance transparent pigment with outstanding rheology, durability and color strength
IRGAZIN® Red A2BN	Anthraquinone 65300	Pigment Red 177	●	●	○	1.5 49	62	high-performance transparent pigment used for effect shades and as shading component with moly orange
CROMOPHTAL® Red A2B	Anthraquinone 65300	Pigment Red 177	●	●	○	1.5 57	91	high-performance transparent pigment used for effect shades and as shading component with moly orange
CINQUASIA® Red B NRT-742-D	Quinacridone 73900	Pigment Violet 19	○	○		– –	–	high-performance pigment
CINQUASIA® Brilliant Red RT-380-D	Quinacridone/Diketo-pyrrolo-pyrrole		●	●		1.6 55	79	transparent blue-shade red for clean effect shades
CINQUASIA® Magenta RT-143-D	Quinacridone 73907	Pigment Red 202	●	●	○	1.6 52	55	high-performance transparent pigment for highly saturated shades
CINQUASIA® Magenta RT-243-D	Quinacridone 73907	Pigment Red 202	●	●	○	1.6 46	42	high-performance semi-transparent pigment for highly saturated shades with good rheology
CINQUASIA® Violet R RT-101-D	Quinacridone 73900	Pigment Violet 19	●	●	●	1.5 75	81	high-performance red-shade violet with outstanding color strength, high saturation and good rheology
CINQUASIA® Violet R NRT-795-D	Quinacridone 73900	Pigment Violet 19	○	○	○	1.5 44	44	high-performance pigment with excellent heat stability and durability
CINQUASIA® Violet R NRT-887-D	Quinacridone 73900	Pigment Violet 19	●	●	●	1.5 67	64	high-performance pigment with excellent heat stability and durability suitable for coil coatings
CROMOPHTAL® Pink PT	Quinacridone 73915	Pigment Red 122	○	○		1.5 71	63	high-performance pigment with high heat stability
CROMOPHTAL® Violet B	Dioxazine 51345	Pigment Violet 37	●	●		1.4 52	61	high-performance pigment with excellent color strength used mainly as shading component
IRGAZIN® Blue A3RN	Indanthrone 69800	Pigment Blue 60	●	●	●	1.5 50	53	high-performance red-shade blue for effect shades with good rheology
IRGAZIN® Blue X-3367	Cu-Phthalocyanine (α nonfloc) 74160	Pigment Blue 15:2	●	●	○	1.5 51	58	high-performance blue with low bronzing effect
IRGALITE® Blue BSP	Cu-Phthalocyanine (α stabilized) 74160	Pigment Blue 15:1	●	●	○	– –	–	classical red-shade blue, very effective in waterborne applications
IRGALITE® Blue GLVO	Cu-Phthalocyanine (β nonfloc) 74160	Pigment Blue 15:4	○	○		1.6 41	49	classical green-shade blue for high color strength

Chrome Yellow and Molybdate Orange Powder Pigments

Ciba® HORNACHROME® Yellow and Ciba® HORNA® Chrome Yellow pigments are widely used in many application fields. HORNACHROME® A products are distinguished by extremely high color strength and opacity. The standard hues can vary from greenish to reddish yellow (lowest number indicates to most greenish hue, highest number most reddish hue). The HORNA® Chrome Yellow GU range consists of stabilized, brilliant shade yellows. HORNA® Chrome Yellow GM products are highly stabilized. HORNA® Chrome Yellow GMX products are highly stabilized and SO₂-resistant. The standard hue of Ciba® HORNA® Molybdate Orange product ranges from yellowish to bluish orange (lowest number indicates yellowest hue, highest number bluest hue). The HORNA® Molybdate Orange ML range offers higher light fastness and SO₂-resistance.

Ciba® HORNATHERM pigments give excellent results in paint systems that require high heat resistance and for which conventional chrome yellows and molybdate oranges are not suitable.

Product name	Chemical type		Industrial coatings		Coil coatings	Density (g/cm ³) Oil absorption (g/100 g pig.)	% Soluble lead	Heat stability (°C)/ Overpaint resistance	Acid-fastness/ Alkali-fastness	Solvent-fastness/ SO ₂ resistance	Weather fastness		Opacity	Color strength (1/25 ISO) (g pigment/100 g TiO ₂)
	CI No	CI Generic name	Conventional solventborne coatings	Waterborne coatings							Full shade	1: 10 TiO ₂		
HORNA® Chrome Yellow GU-15-SQ	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○		5.4 24	–	200 5	4 1	5 2	3	3	high	10
HORNA® Chrome Yellow GU-25-SQ	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○		5.6 23	–	200 5	4-5 1	5 2	3	3	high	8.3
HORNA® Chrome Yellow CM-2002	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○		5.3 21	–	200 5	4 1	5 1	2-3	3	high	6.3
HORNA® Chrome Yellow GUH-35-SQ	Lead chromate 77600	Pigment Yellow 34	●	○		5.4 20	<5%	200 5	4-5 1	5 2	3	3	high	5.9
HORNA® Chrome Yellow CM-2003	Lead chromate 77600	Pigment Yellow 34	●	○		5.4 19	–	200 5	3-4 1	5 1	2-3	3	high	5.9
HORNA® Chrome Yellow GUH-41	Lead chromate 77600	Pigment Yellow 34	●	○		5.7 21	<5%	200 5	3-4 1	5 2	3	3	high	6.3
HORNACHROME® Yellow GUA-19	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○		5.2 25	–	200 5	4 1	5 2	3	3	high	6.7
HORNACHROME® Yellow GUAH-26	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○		5.3 22	<5%	200 5	4 1	5 2	3	3	high	4.8
HORNACHROME® Yellow GUAH-35	Lead chromate 77600	Pigment Yellow 34	●	○		5.4 21	<5%	200 5	4 1	5 2	3	3	high	4.2
HORNA® Chrome Yellow GMH-25	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○	○	5.5 24	<5%	200 5	2-3 4-5	5 3	4	4	high	6.7
HORNA® Chrome Yellow CM-1990	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○	●	5.5 24	–	200 5	2-3 4	5 3	4	4	high	6.7
HORNA® Chrome Yellow GMH-35	Lead chromate 77600	Pigment Yellow 34	●	○	○	5.5 24	<5%	200 5	3 4	5 3	4	4	high	5.6
HORNA® Chrome Yellow CM-1991	Lead chromate 77600	Pigment Yellow 34	●	○	●	5.2 24	–	200 5	2-3 4	5 3	4	4	high	7.1
HORNA® Chrome Yellow GMH-41-SQ	Lead chromate 77600	Pigment Yellow 34	●	○	○	5.8 26	<2%	200 5	3-4 3	5 4	4	4	high	5.9
HORNA® Chrome Yellow GMX-15-SQ	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○	●	5.1 25	–	200 5	3 4-5	5 5	4	4	high	9.1
HORNA® Chrome Yellow GMXH-25-SQ	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○	●	5.1 23	<3%	200 5	3 4-5	5 5	4	4	high	6.7
HORNA® Chrome Yellow GMXH-35-SQ	Lead chromate 77600	Pigment Yellow 34	●	○	●	5.0 26	<2%	200 5	4 4	5 5	4	4	high	5.9
HORNA® Chrome Yellow GMXH-45-SQ	Lead chromate 77600	Pigment Yellow 34	●	○	●	5.0 25	<2%	200 5	4 4	5 5	4	4	high	6.3
HORNACHROME® Yellow GMXAH-15	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○	●	5.1 33	<3%	200 5	3 4-5	5 5	4	4	high	6.7
HORNACHROME® Yellow GMXAH-25	Lead (sulfo) chromate 77603	Pigment Yellow 34	●	○	●	5.0 27	<3%	200 5	3-4 4-5	5 5	4	4	high	5.6
HORNACHROME® Yellow GMXAH-35	Lead chromate 77600	Pigment Yellow 34	●	○	●	5.1 29	<2%	200 5	2 4	5 5	4	4	high	4.5

Product name	Chemical type		Industrial coatings		Coil coatings	Density (g/cm ³)/ Oil absorption (g/100 g pig.)	% Soluble lead	Heat stability (°C)/ Overpaint resistance	Acid-fastness/ Alkali-fastness	Solvent-fastness/ SO ₂ resistance	Weather fastness		Opacity	Color strength (1/25 ISD) (g pigment/100 g TiO ₂)
	CI No	CI Generic name	Conventional solventborne coatings	Waterborne coatings							Full shade	1: 10 TiO ₂		
HORNA® Molybdate Orange MRH-73	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	○	○		5.7 19	<5%	200 5	1 3	5 2	2-3	2-3	high	7.1
HORNA® Molybdate Orange MRH-75	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	○	○		5.6 19	<5%	200 5	1 4	5 2	2-3	2-3	high	8.3
HORNA® Molybdate Orange MRH-80-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	○	○		5.6 20	<5%	200 5	1 4-5	5 2	2-3	2-3	high	13
HORNA® Molybdate Orange MRH-90-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	○	○		6.0 24	<5%	200 5	1 4	5 2	2-3	2-3	high	32
HORNA® Molybdate Orange 34444	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	●	○	○	6.2 23	<5%	200 5	1 3-4	5 4	4-5	4-5	high	8.3
HORNA® Molybdate Orange AAH-3-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	●	○	●	6.2 20	<2%	200 5	1 3-4	5 4-5	4-5	4-5	high	11
HORNA® Molybdate Orange MLH-74-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	●	○	●	6.2 20	<2%	200 5	1 4-5	5 4-5	4-5	4-5	high	10
HORNA® Molybdate Orange MLH-740-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	●	○	●	5.9 23	<3%	200 5	1 4	5 4-5	4-5	4-5	high	9.1
HORNA® Molybdate Orange MLH-79-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	●	○	●	5.9 26	<2%	200 5	1 4	5 4-5	4-5	4-5	high	14
HORNA® Molybdate Orange MLH-84-SQ	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	●	○	●	6.0 23	<2%	200 5	1 4-5	5 4-5	3	3	high	22
HORNATHERM Yellow GT-26	Lead (sulfo) chromate 77603	Pigment Yellow 34	○	○	●	3.8 41	<5%	200 5	5 5	5 3-4	3-4	3-4	high	6.3
HORNATHERM Yellow GT-35	Lead chromate 77600	Pigment Yellow 34	○	○	●	4.0 36	<5%	200 5	4 5	5 3-4	3-4	3-4	high	5.9
HORNATHERM Orange MT-75	Mix crystal lead-(sulfo)-chromate-molybdate 77605	Pigment Red 104	○	○	●	3.9 27	<3%	200 5	4 3-4	5 4	4-5	4-5	high	9.1

Aqueous Paste Dispersions and Pigment Preparations

Ciba® UNISPERSE®-S

UNISPERSE®-S are highly concentrated pigment dispersions developed to meet modern waterborne paint requirements, particularly in new and improved waterborne paint systems, where they have excellent compatibility.

UNISPERSE®-S dispersions are glycol-free, do not contain any alkylphenol ethoxylates (APEs). UNISPERSE®-S can be used in the formulation of solvent-free paints in accordance with industry standards for these systems. They are suitable for aqueous PUR coating systems.

Product name	Chemical type		Industrial coatings		Coil coatings	Specific gravity (g/100 ml/100)	% Pigment (approx.)	% Solid (approx.)	Acid fastness/ Alkali fastness
	CI No	CI Generic name	Conventional solventborne coatings	Waterborne coatings					
UNISPERSE® Yellow 10GN-S	Arylamide 11710	Pigment Yellow 3		○		1.20	48	55	5 5
UNISPERSE® Yellow 2093-S2	Bismuth vanadate 771740	Pigment Yellow 184		○		1.95	63	68	4-5 5
UNISPERSE® Yellow 2GLT-S	Tetrachloroisindolinone 56284	Pigment Yellow 109		○		1.25	40	48	5 5
UNISPERSE® Yellow GS-S	Arylamide 11741	Pigment Yellow 74		○		1.14	40	48	5 4-5
UNISPERSE® Yellow GO-S	Arylamide 11741	Pigment Yellow 74		○		1.14	45	48	5 4-5
UNISPERSE® Yellow 2RLT-S	Tetrachloroisindolinone 56280	Pigment Yellow 110		○		1.21	35	42	5 5
UNISPERSE® Yellow Oxide M-S	Iron oxide 77492	Pigment Yellow 42		○		1.85	60	62	4-5 4-5
UNISPERSE® DPP Orange RA-S	Diketo-pyrrolo-pyrrole –	Pigment Orange 73		○		1.09	36	42	5 5
UNISPERSE® Red 2G-S	Dinitroaniline Orange 12075	Pigment Orange 5		○		1.13	38	45	5 3-4
UNISPERSE® Red 2030-S2	Diketo-pyrrolo-pyrrole 56110	Pigment Red 254		○		1.14	41	49	5 4-5
UNISPERSE® 3RS-S	BON Arylamide 12370	Pigment Red 112		○		1.08	42	48	5 4
UNISPERSE® Red Oxide R-S	Iron oxide 77491	Pigment Red 101		○		1.88	60	67	4-5 4-5
UNISPERSE® DPP Rubine TR-S	Diketo-pyrrolo-pyrrole –	Pigment Red 264		○		1.14	38	50	5 5
UNISPERSE® Violet B-S	Dioxazine 51319	Pigment Violet 23		○		1.08	28	37	5 5
UNISPERSE® Blue B-S	Cu-Phthalocyanine (α unstabilized) 74160	Pigment Blue 15		○		1.22	40	50	5 5
UNISPERSE® Blue G-S	Cu-Phthalocyanine (β) 74160	Pigment Blue 15:3		○		1.15	40	53	5 5
UNISPERSE® Green G-S	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 7		○		1.34	46	53	5 5
UNISPERSE® Black C-S	Carbon Black 77266	Pigment Black 7		○		1.06	35	42	5 5

Other product

UNISPERSE® Black B-PI	Carbon Black 77266	Pigment Black 7		○		Jet Black
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Ciba® MICROLITH®-A

The MICROLITH®-A range consists of specially prepared forms of high-grade organic, classical organic and inorganic pigments predispersed in an ethyl cellulose carrier resin that is compatible with nitrocellulose systems.

Product name	Chemical type CI No CI Generic name	Industrial coatings		Coil coatings
		Conventional solventborne coatings	Waterborne coatings	
MICROLITH® Yellow 4G-A	Azo condensation 20710 Pigment Yellow 93	○		
MICROLITH® Yellow MX-A	Diarylide m-xylylide 21100 Pigment Yellow 13	○		
MICROLITH® Yellow 2R-A	Diarylide dimethoxy chloranilide 21108 Pigment Yellow 83	○		
MICROLITH® Brown 5R-A	Azo condensation 20060 Pigment Brown 23	○		
MICROLITH® Scarlet R-A	Azo condensation 20730 Pigment Red 166	○		
MICROLITH® Red 2C-A	Azo 2B-toner (Ca) 15865:2 Pigment Red 48:2	○		
MICROLITH® Red 3R-A	Naphthol AS 12485 Pigment Red 146	○		
MICROLITH® Magenta 2B-A	Naphthol AS 12487 Pigment Red 184	○		
MICROLITH® Violet B-A	Dioxazine 51345 Pigment Violet 37	○		
MICROLITH® Blue 4G-A	Cu-Phthalocyanine (β) 74160 Pigment Blue 15:3	○		
MICROLITH® Green G-A	Cu-Phthalocyanine (halogenated) 74260 Pigment Green 7	○		
MICROLITH® White R-A	Titanium oxide 77891 Pigment White 6	○		
MICROLITH® Black C-A	Carbon Black 77266 Pigment Black 7	○		

Ciba® MICROLITH®-K

The MICROLITH®-K range consists of specially prepared forms of mainly high-grade pigments predispersed in a vinyl copolymer resin that is compatible with vinyl, acrylic and aromatic polyurethane media.

Product name	Chemical type CI No CI Generic name	Industrial coatings		Coil coatings
		Conventional solventborne coatings	Waterborne coatings	
MICROLITH® Yellow 3G-K	Azo condensation 20710 Pigment Yellow 93	○		
MICROLITH® Yellow 2R-K	Diarylide dimethoxy chloranilide 21108 Pigment Yellow 83	○		
MICROLITH® Yellow 3R-K	Tetrachloroisindolinone 56280 Pigment Yellow 110	○		
MICROLITH® Brown 5R-K	Azo condensation 20060 Pigment Brown 23	○		
MICROLITH® Scarlet R-K	Azo condensation 20730 Pigment Red 166	○		
MICROLITH® Red BR-K	Azo condensation 20735 Pigment Red 144	○		
MICROLITH® DPP Red B-K	Diketo-pyrrolo-pyrrole 56110 Pigment Red 254	○		
MICROLITH® Magenta 5B-K	Quinacridone 73907 Pigment Red 202	○		
MICROLITH® Violet B-K	Dioxazine 51345 Pigment Violet 37	○		
MICROLITH® Blue A3R-K	Indanthrone 69800 Pigment Blue 60	○		
MICROLITH® Blue 4G-K	Cu-Phthalocyanine (β) 74160 Pigment Blue 15:3	○		
MICROLITH® Green G-K	Cu-Phthalocyanine (halogenated) 74260 Pigment Green 7	○		
MICROLITH® White R-K	Titanium oxide 77891 Pigment White 6	○		
MICROLITH® Black C-K	Carbon Black 77266 Pigment Black 7	○		

Ciba® MICROLITH®-T

The MICROLITH®-T range consists of specially prepared forms of mainly high-grade pigments predispersed in a modified resin ester that is compatible with a wide range of polymers.

Product name	Chemical type		Industrial coatings			Density (g/cm ³)/ Oil absorption (g/100 g pig.)	Surface area (m ² /g)	Overpaint resistance	Acid-fastness/ Alkali-fastness	Light fastness		
	CI No	CI Generic name	Conventional solventborne coatings	Waterborne coatings	Coil coatings					Full shade	75:25 TiO ₂	90:10 Alu
MICROLITH® Yellow 2G-T	Diarylide o-anisidide 21105	Pigment Yellow 17	●			1.2 20	0.1	–	–	–	–	–
MICROLITH® Yellow 3R-T	Tetrachloroisindolinone 56280	Pigment Yellow 110	●			1.3 18	2.6	5	5 5	7-8	7-8	7
MICROLITH® Brown 5R-T	Azo condensation 20060	Pigment Brown 23	●			1.2 20	–	5	5 5	7-8	7	7
MICROLITH® Scarlet R-T	Azo condensation 20730	Pigment Red 166	●			1.2 14	0.3	5	5 5	7-8	7	6
MICROLITH® Red BR-T	Azo condensation 20735	Pigment Red 144	●			1.2 11	0.3	5	5 5	7-8	6-7	5-6
MICROLITH® Blue GS-T	Cu-Phthalocyanine (α stabilized) 74160	Pigment Blue 15:1	●			1.2 17	1.4	5	5 5	8	8	8
MICROLITH® Blue 4G-T	Cu-Phthalocyanine (β) 74160	Pigment Blue 15:3	●			1.2 17	–	5	5 5	8	8	8
MICROLITH® Green G-T	Cu-Phthalocyanine (halogenated) 74260	Pigment Green 7	●			1.3 15	0.9	5	5 5	8	8	7-8
MICROLITH® Black C-T	Carbon Black 77266	Pigment Black 7	●			1.3 14	1.0	5	5 5	8	8	8

Special Dyes and Effect Pigments

Ciba® ORASOL®

ORASOL® dyes are soluble in organic solvents and exhibit good all-round fastness properties. These dyes have particularly good solubility in alcohols, ketones and esters, but in general they are insoluble or only sparingly soluble in hydrocarbons. ORASOL® dyes have a very wide field of application in coatings.

Product name	Chemical type CI Generic name	Industrial coatings			Density (g/cm ³)	Bulking volume (l/kg)	pH	Decomposition temp. (°C)	Solubility at 20 °C (g/liter solvent)					
		Conventional solventborne coatings	Waterborne coatings	Coil coatings					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® Yellow 3R	1:2 Cobalt complex Solvent Yellow 25	●			1.52	2.2	7.6	260	25 150	0 0	0 0	400 50	250 250	250
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® Orange RG	1:2 Chrome complex Solvent Orange 99	●			1.33	4.0	7.6	225	25 50	150 100	25 0	700 250	250 250	400
ORASOL® Brown 2GL	1:2 Chrome complex Solvent Brown 42	●			1.49	1.8	7.8	340	50 50	25 250	50 0	800 300	50 200	400
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® Brown 6RL	1:2 Chrome complex Solvent Brown 44	●			1.51	1.8	5.1	290	25 0	25 150	25 25	400 300	25 150	150
ORASOL® Red 3GL	1:2 Chrome complex Solvent Red 130	●			1.53	2.7	5.6	310	100 350	25 900	900 650	900 900	900 650	900
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® Red BL	1:2 Chrome complex Solvent Red 122	●			1.36	4.3	6.7	200	150 150	25 150	200 200	500 750	200 400	300
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® Blue GL	Phthalocyanine Solvent Blue 70	●			1.29	1.9	8.5	260	25 25	100 0	100 100	100 250	650 600	350
ORASOL® Black CN	1:2 Chrome complex Solvent Black 28	●			1.38	3.0	8.0	255	25 50	0 0	0 0	1000 450	1000 1000	1000
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

Ciba® GRAPHITAN®

The GRAPHITAN® range consists of effect pigments.

Product name	Chemical type CI No	CI Generic name	Industrial coatings			Specific gravity (g/cm ³)	Surface area (m ² /g)	Heat stability (°C)/ Overpaint resistance	Acid-fastness/ Alkali-fastness	Weather fastness		
			Conventional solventborne coatings	Waterborne coatings	Coil coatings					Full shade	50:50 white mica	50:50 Russet mica
GRAPHITAN® 7525	Graphite 77265	Pigment Black 10	○	○	○	2.33	22.8	200 5	5 5	5	5	5
GRAPHITAN® 7700	Molybdenum disulfide 77770	Pigment Black 34	○	○	○	4.70	5.5	200 5	5 5	5	5	5

Light Stabilizers

The Ciba® TINUVIN® and the Ciba® CHIMASSORB® ranges consist of light stabilizers with different chemistries. The range contains two types of light stabilizer: Ultraviolet Light Absorbers (UV-A) and Hindered Amine Light Stabilizers (HALS). UV-A filter harmful UV light and essentially prevent discoloration and delamination of coatings. HALS trap free radicals once they form and are essentially effective for retaining surface properties such as gloss and prevent cracking and chalking of paints. HALS and UV-A show when used in combination a synergistic effect. Our extended product range enables to offer solutions for nearly all types of coatings technologies, including solventborne, waterborne, UV-curable systems.

Product name	Chemical type	Industrial coatings		Coil coatings	Physical form	% Active component	Volatility/thermal stability (active substance)	Molecular weight (g/mol) <i>Equivalent weight</i>	Basicity pK _b	Melt point (°C) <i>Boiling point (°C)</i>	Density at 20°C (g/cm ³)	Viscosity at 20°C (mPa.s Brookfield 20 rpm)	Solubility / Miscibility at 20°C (g/100 g)							
		Conventional solventborne coatings	Waterborne coatings										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® 99-2	Benzotriazole	●	○	●	liquid	95 ^a	non-volatile	451.6 –	–	n/a –	1.07	2000	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	<0.01
TINUVIN® 171	Benzotriazole	●	○	–	liquid	100	non-volatile	395 –	–	n/a 174	1.02	–	>50 >50	>50 >50	>50 >50	>50 >50	– –	>50 –	<0.01	
TINUVIN® 328	Benzotriazole	○	–	–	solid	100	volatile above 130°C	351.5 352	–	80-88 –	1.17	n/a	14 33	34 27	25 14	13 16	14 25	10 34	<0.01	
TINUVIN® 384-2	Benzotriazole	●	○	●	liquid	95 ^a	non-volatile	451.6 –	–	n/a –	1.07	3200	>50 >50	>50 >50	>50 >30	>30 >30	– >50	>50 >30	<0.01	
TINUVIN® 900	Benzotriazole	–	–	○	solid	100	non-volatile	447.6 448	–	137-141 –	1.22	n/a	<0.1 24	10 3	4 5.5	4.5 2	<0.1 2	– <0.1	<0.01	
TINUVIN® 928	Benzotriazole	–	–	○	solid	100	non-volatile	441.6 442	–	109-113 440	1.14	n/a	– –	>50 –	30 –	>30 30	10 9.5	– –	<0.01	
TINUVIN® 1130	Benzotriazole	●	●	●	liquid	100	non-volatile	577 –	–	n/a 166	1.17	7400	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	>50 >50	<0.01	
TINUVIN® 400	Triazine	●	–	○	liquid	85 ^b	non-volatile	647 550	–	n/a –	1.07	–	– >50	>50 >50	>50 >50	– –	>50 >50	>50 >50	<0.01	
CHIMASSORB® 81	Benzophenone	○	–	●	soild	100	non-volatile	326.4 –	–	48-49 >400	1.16 (25°C)	n/a	>50 >50	– –	– –	– 44	– –	– –	<0.01	

Hindered Amine Light Stabilizers (HALS)

TINUVIN® 123	Hindered aminoether	●	–	●	liquid	100	3% at 175°C 12% at 200°C	737 369	9.6	n/a 367	0.97	3000	>50	>50	>50	>50	–	–	<0.01	<0.01
TINUVIN® 292	Hindered amine	●	○	●	liquid	100	230°C	509 252	5.51	n/a >350	0.99	400	>50	>50	>50	>50	–	>50	>50	<0.01

Light Stabilizer Blends

TINUVIN® 5050	Benzotriazole/ HALS	●	–	●	liquid	100	non-volatile	–	–	n/a	1.03	900	>50	>50	>50	>50	>50	>50	>50	<0.01
TINUVIN® 5060	Benzotriazole/ HALS	●	○	●	liquid	100	non-volatile	–	–	n/a	0.98	10000	>50	>50	>50	>50	>50	>50	>50	<0.01
TINUVIN® 5100	Hindered aminoether	●	–	○	liquid	100	3% at 175°C 12% at 200°C	737 369	9.6	n/a 367	0.97	3000	>50	>50	>50	>50	–	–	<0.01	<0.01
TINUVIN® 5151	Benzotriazole/ HALS	●	●	○	liquid	100	non-volatile	–	–	n/a	1.10	7000	>50	>50	>50	>50	>50	>50	>50	<0.01

Solvents

- a 1-methoxy-2-propyl acetate
b 1-methoxy-2-propanol
c xylene

*Registered Trademark, Eastman Kodak Company

For **Absorption Spectra** of selected Ultraviolet Light Absorbers (UV-Absorbers), see Appendix

Antioxidants

Ciba® IRGANOX® and Ciba® IRGAFOS® antioxidants hinder thermally induced oxidation of polymers in coatings. They trap free radicals formed upon heating in presence of oxygen and prevent discoloration or alteration of resins' mechanical properties.

Product name	Chemical type	Industrial coatings		Coil coatings	Physical form	Molecular weight (g/mol)	Volatility	Melt point (°C)	Density at 20°C (g/cm³)	Solubility / Miscibility at 20°C (g/100 g)					
		Conventional solventborne coatings	Waterborne coatings							n-Hexane/ Methanol	Acetone/ Ethyl acetate	Dibasic ester (DBE)/ Methoxy propyl acetate	Toluene/ Xylene	Water	
IRGANOX® 1010	Phenolic	●		●	solid	1178	non-volatile	110-125	1.15	0.3	47	9	60	<0.01	
IRGANOX® 1076	Phenolic	○		○	solid	531	non-volatile	50-55	1.02	0.9	47	>23	>23	<0.01	
IRGANOX® 245 DW	Phenolic		●		solid	587	non-volatile	76-79	1.14	32	19	—	50	<0.1	
IRGAFOS® 168	Phosphite			○	solid	647	non-volatile	183-186	1.0-1.05	<0.1	>50	—	6	<0.1	
IRGAFOS® 126	Phosphite			○	solid	604	non-volatile	>160	1.1-1.2	12	37	—	—	<0.01	
IRGANOX® XP 620	Lactone/Phosphite/Phenolic	●		●	solid	—	non-volatile	—	—	11	1	—	30	<0.01	
IRGAFOS® XP 60	Lactone/Phosphite	●		●	solid	—	non-volatile	100-175	—	4	—	—	—	<0.01	
										4.8	8.5	—	35.7	<0.01	
										1.9	—	—	—	<0.5	
										—	—	—	—	<0.5	
										—	—	—	—	<0.5	

Corrosion Inhibitors

Ciba® IRGAMET® products are metal deactivators used to protect a variety of ferrous and nonferrous metals like copper, zinc, aluminum and steel. Products can be used in solventborne and waterborne systems.

Product name	Chemical type	Industrial coatings			Physical form	Molecular weight (g/mol)	Volatility/Thermal stability	Melt point (°C)	Density at 20°C (g/cm³)	Solubility / Miscibility at 20°C (g/100 g)						
		Conventional solventborne coatings	High-bake solventborne coatings	Waterborne coatings						Mineral spirits/ <i>Xylene</i>	Methanol/ <i>Isopropanol</i>	n-Butanol/ <i>Methyl isobutyl ketone</i>	Ethyl cellosolve/ <i>Methyl carbitol</i>	Butyl carbitol/ <i>PE ether</i>	PM acetate/ <i>Water</i>	
IRGAMET® 39	Tolutriazole	○			liquid	-	-	n/a	0.95	-	-	-	-	-	-	-
IRGAMET® 42	Tolutriazole			○	liquid	-	-	n/a	1.16	-	-	-	-	-	-	-

Optical Brighteners

Ciba® UVITEX® and Ciba® TINOPAL® optical brighteners are designed to brighten coatings and to mask yellowing. Optical brightening agents can also be used where fluorescence can provide a means of detecting film thickness, registration and identification.

Product name	Chemical type	Industrial coatings		Physical form	Molecular weight (g/mol)	Volatility	Melt point (°C)	Density at 20°C (g/cm³)	Solubility / Miscibility at 20°C (g/100 g)				
		Conventional solventborne coatings	Waterborne coatings						Methanol/ Water	Acetone/ Dioxane	Xylene/ Methylethylketone	Dowanol**/ Texanol*	
UVITEX® OB	Benzoxazole	●		solid	430.6	non-volatile	197-202	1.26	≤0.1 ≤0.01	0.5 2	5 1.3	– –	
UVITEX® NFW liquid	Distyrylbiphenyl		●	liquid	562.5	non-volatile	n/a	1.16-1.19	>50 >50	0.6 1.4	– –	>50 7.8	
TINOPAL® SFP	Stilbene		●	solid	1305	non-volatile	>300	1.21	– >100	– –	– –	– –	

* Registered Trademark, Eastman Kodak Company

** Registered Trademark, Dow Chemical Company

Algicides

Ciba® IRGAROL® 1051 is an algicide specifically designed for use in marine antifouling coatings. A highly specific and effective inhibitor of photosynthesis, it can control fouling of marine surfaces caused by algae. Its very low water solubility helps to ensure very slow leaching rates and therefore prolongs antifouling action.

Product name	Chemical type	Marine coatings		Physical form	Molecular weight (g/mol)	Volatility	Melt point (°C)	Density at 20°C (g/cm³)	Solubility / Miscibility at 20°C (g/100 g)					
		Conventional solventborne coatings	Waterborne coatings						Xylene/ Shellsol-A**	Solvent naphtha/ Mineral spirits	Methyl isobutyl ketone/ Butyl acetate	Butylene glycol/ Propylene glycol	Octanol/ Texanol*	
IRGAROL® 1051	Triazine	●	●	solid	253.4	non-volatile	128-133	1.1	5 3	5 1	9 15	15 1	5 5	

* Registered Trademark, Eastman Kodak Company

** Registered Trademark, Shell Oil Company

Polymer Specialties

Ciba® DISPEX®

The 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	Industrial coatings			Physical form	Average molecular weight (g/mol)	% Active content	pH	Neutralizing agent	Density at 20°C (g/cm ³)
		Conventional solventborne coatings	Waterborne coatings	Coil coatings						
DISPEX® A40	Ammonium polyacrylate		●		liquid	4000-5000	40	8.0	NH ₃	1.16
DISPEX® N40	Sodium polyacrylate		●		liquid	4000-5000	40	7.5	NaOH	1.30
DISPEX® R50	Polyacrylic acid		●		liquid	4000-5000	50	3.0	–	1.26
DISPEX® GA40	Acrylic copolymer		●		liquid	6000	40	7.5	NH ₃	1.13
DISPEX® G40	Acrylic copolymer		●		liquid	4000-5000	39	7.5	NaOH	1.20
DISPEX® HDN	Acrylic copolymer		●		liquid	20000	30	7.2	NaOH	1.20

Ciba® VISCALEX® and Ciba® RHEOVIS®

VISCALEX® and RHEOVIS® products are thickening and rheological control agents. 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	Industrial coatings			Physical form	Rheology mechanism*	% Active content	pH	Brookfield viscosity (mPa.s)	Density at 20°C (g/cm ³)
		Conventional solventborne coatings	Waterborne coatings	Coil coatings						
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

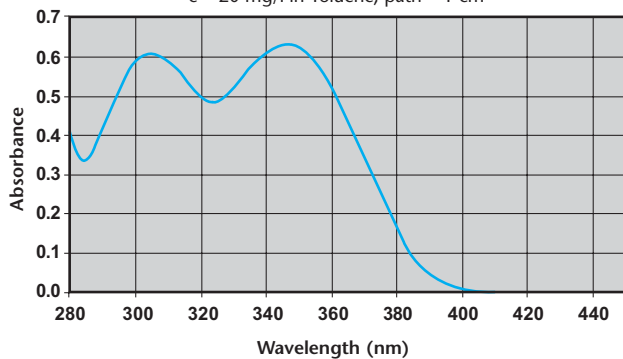
HASE: Hydrophobically modified Alkali Swellable Emulsions

Appendix

Absorption Spectra of Ultraviolet Light Absorbers (UV-Absorbers)

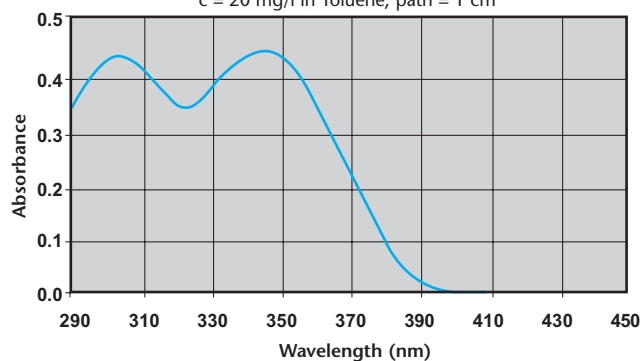
TINUVIN® 384-2 (Benzotriazole)

c = 20 mg/l in Toluene; path = 1 cm



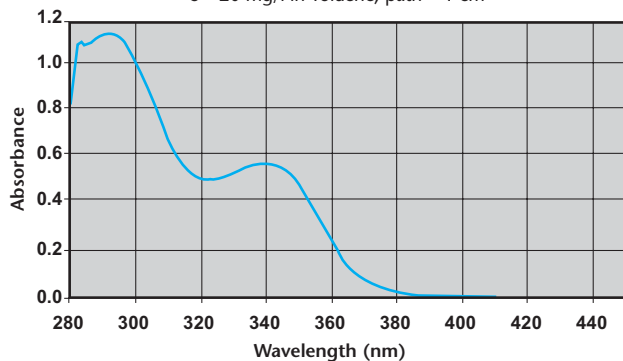
TINUVIN® 1130 (Benzotriazole)

c = 20 mg/l in Toluene; path = 1 cm



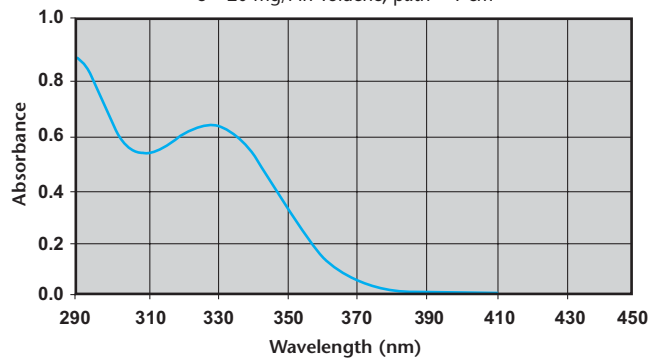
TINUVIN® 400 (Triazine)

c = 20 mg/l in Toluene; path = 1 cm



CHIMASSORB® 81 (Benzophenone)

c = 20 mg/l in Toluene; path = 1 cm



Test Methods – Fastness Properties for Pigments

The test methods used to assess chemical and physical fastness properties of Ciba Specialty Chemicals coatings pigment products are described below.

Pigments – Organic and Inorganic Powder Pigments

► Color Index

Names and numbers refer to entries in the Colour Index International, Society of Dyers and Colourists, Bradford, England, 2000.

► Density

Measured in accordance to ISO 787/X and quoted in g/cm³ at 20°C.

► 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.

► Surface Area (Specific Surface)

Determined by the «BET» nitrogen adsorption method and is expressed in m²/g. (Ref. Brunauer, Emmet, Teller, «Journal Amer. Chem.Soc.» 57, 1954.)

► Heat Stability

The value quoted indicates up to which temperature the pigments do not significantly alter coloristically. Test performed in alkyd melamine with upper testing limit of 200°C.

► Overpaint Resistance / Bleeding

Determination carried out on full strength alkyd melamine stoved finish coated with white alkyd melamine paint and restoved for 30 minutes at 120°C. Discoloration against white background assessed using the ISO Gray scale 105 A02 (1–5) for color change (scale: 1 = severe change, 5 = no change).

► Chemical Fastness

Resistance was tested on an alkyd melamine film against the ISO Gray scale 105 A02 (1–5) for color change (0.5N HCl, 2.5% NaOH) (scale: 1 = severe change, 5 = no change).

► Weathering / Durability

Panels at full shade, 1/1 ISD (International Standard Depth) and 1/25 ISD based on an alkyd melamine resin system were exposed for 1000 hours in an Atlas Weather-O-Meter (xenon burner, DIN 53-387). Assessment was made using the ISO Gray scale 105 A02 (1–5) for color change (scale: 1 = severe change, 5 = no change).

► Opacity

The opacity/hiding power was assessed in full shade based on the contrast (ΔE -value) over a black/white Morest paper (Description: low = low opacity, transparent; med = medium opacity; high = high opacity).

► Color Strength

Measured in accordance to ISO 784/24:1985. The color strength relates to 1/25 ISD (International Standard Depth). The values quoted indicate the amount of each pigment required with 100 grams TiO₂ to achieve this depth. This means the lower the pigment content, the greater the color strength. The figures quoted are intended as a guide. Exact color strength should be determined under the customer's dispersion conditions, resin system and appropriate color depth.

Pigments – Chrome Yellow and Molybdate Orange Powder Pigments

► **Color Index, Density, Oil Absorption, Heat Stability, Overpaint Resistance/Bleeding, Color Strength, Opacity**
see above: Pigments – Organic and Inorganic Powder Pigments

► Soluble Lead

Measured in accordance to ISO 6713-2 and quoted as percentage of soluble lead.

► Chemical Fastness

0.5% of dry pigment was mixed with 15 ml 5% HCl or 1% NaOH solution. After 1 hour, the color differences were assessed against the ISO Gray scale 105 A02 (1–5) (scale: 1 = severe change, 5 = no change).

► Solvent Fastness

0.2g of pigment was suspended in 10 ml of solvent in a folded filter. After 24 hrs the filter containing the pigment was

removed and the staining of the solvent was assessed using the ISO Gray scale 105 A02 (1–5) (scale: 1 = severe change, 5 = no change).

► SO₂ Resistance

Alkyd melamine coated full strength panels were exposed according to DIN 50018 (3 cycles, 2 liters SO₂). Assessment versus ISO Gray scale 105 A02 (1–5) (scale: 1 = severe change, 5 = no change).

► Weathering / Durability

Panels at full shade and at 1:10 white reduction (TiO₂) based on an alkyd melamine resin system were exposed for 1000 hours in an Atlas Weather-O-Meter (xenon burner, DIN 53-387). Assessment was made using the ISO Gray Scale 105 A02 (1–5) for color change (scale: 1 = severe change, 5 = no change).

Aqueous Paste Dispersions and Pigment Preparations – Ciba® UNISPERSE®-S

► Color Index

see above: Pigments – Organic and Inorganic Powder Pigments

► Specific Gravity

Weight of 100 ml of aqueous paste divided by 100.

► Chemical Fastness

Spots of 0.5N HCl and 2.5% NaOH solution were placed on full strength panels, covered with a watch glass and left for 24 hours. Color change rated against the ISO Gray scale 105 A02 (1–5) (scale: 1 = severe change, 5 = no change).

Aqueous Paste Dispersions and Pigment Preparations – Ciba® MICROLITH®-T

► Color Index, Density

see above: Pigments – Organic and Inorganic Powder Pigments

► Overpaint Resistance

Resistance to overpainting was tested at full strength in an alkyd melamine formaldehyde binder. The color difference between the overcoated full strength finish and the overcoated primer on either side is assessed using the ISO Gray Scale 105 A02 (1–5) for color change (scale: 1 = severe change, 5 = no change).

► Chemical Fastness

Chemical resistance was tested at full strength using 10% HCl and 5% NaOH. The panels, coated with an alkyd melamine formaldehyde finish, were immersed in an appropriate solution for 24 hours at 20°C. Color change was assessed using the ISO Gray scale 105 A02 (1–5) (scale: 1 = severe change, 5 = no change).

► Light Fastness

Measured in accordance to ISO/R 105/I; DIN 54003. Panels at full shade, at 75:25 white reduction (TiO₂) and in a 90:10 aluminum effect shade in an alkyd melamine formaldehyde binder were exposed for 2000 hours in an Atlas Fade-O-Meter. Light fastness was assessed using a simultaneously exposed standard blue wool scale on a geometric scale 1–8 (scale: 1 = very poor light fastness, 8 = outstanding light fastness).

Special Dyes and Effect Pigments – Ciba® ORASOL®

► Color Index, Density

see above: Pigments – Organic and Inorganic Powder Pigments

► 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.

► Decomposition Temperature

The start of decomposition is measured by DTA (differential thermal analysis), the temperature is increased by 20°C/min.

► Solubility

Measured in accordance to ISO 7579; DIN 55976. The solubility values are given in g dye/liter solvent at 20°C. Variation ±10%.

Special Dyes and Effect Pigments – Ciba® GRAPHITAN®

see above: Pigments – Organic and Inorganic Powder Pigments

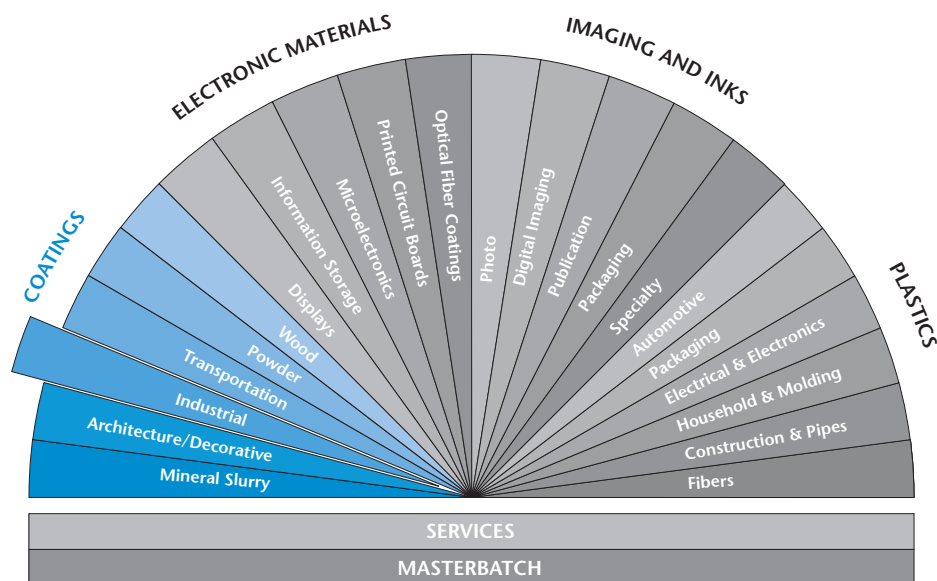
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We do business in more than 120 countries and have sales representatives and technical expertise available for our customers around the world.

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