Product range

MACROLEX® Gran Dyes in Polystyrene + 2.0 % TiO_2 (1/3 Standard Depth)

Dyes	Dyestuff type	Color Index Part I	Color Index Part II	Safety data sheet number
MACROLEX® Yellow 6G Gran	Methine	Solvent Yellow 179; D. Y. 201	–	142011
MACROLEX® Yellow 3G Gran	Pyrazolone	Solvent Yellow 93	48160	141996
MACROLEX® Yellow G Gran	Quinophthalone	Solvent Yellow 114; D. Y. 54	47020	141384
MACROLEX® Yellow E2R Gran	Quinophthalone	–	–	286269
MACROLEX® Yellow RN	Anthraquinone	Pigment Yellow 147	60645	409905
MACROLEX® Orange 3G Gran	Perinone	Solvent Orange 60	564100	143972
MACROLEX® Orange R Gran	Methine	Solvent Orange 107; D. O. 47	–	141678
MACROLEX® Red E2G Gran	Perinone	Solvent Red 179	564150	147269
MACROLEX® Red A	Dyestuff mixture	–	–	56384115
MACROLEX® Red EG Gran	Perinone	Solvent Red 135	564120	141392
MACROLEX® Red G Gran	Anthraquinone	Solvent Red 111	60505	142038
MACROLEX® Red H	Azo	–	–	238914

Shades may differ from the real color due to printing influence.

Dyes	Dyestuff type	Color Index Part I	Color Index Part II	Safety data sheet number
MACROLEX® Red B	Azo	Solvent Red 195	–	164899
MACROLEX® Red 5B Gran	Anthraquinone	Solvent Red 52	68210	142542
MACROLEX® Red Violet R Gran	Anthraquinone	D. V. 31; D. V. 26; S. V. 59	62025	147277
MACROLEX® Violet 3R Gran	Anthraquinone	Solvent Violet 36	–	144189
MACROLEX® Violet B Gran	Anthraquinone	Solvent Violet 13	60725	142127
MACROLEX® Violet 3B Gran	Anthraquinone	Solvent Violet 13	60725	168851
MACROLEX® Blue 3R Gran	Anthraquinone	–	–	148125
MACROLEX® Blue RR Gran	Anthraquinone	Solvent Blue 97	615290	142119
MACROLEX® Blue 2B Gran	Anthraquinone	Solvent Blue 104; S. B. 87	61568	979965
MACROLEX® Green 5B Gran	Anthraquinone	Solvent Green 3	61565	151053
MACROLEX® Green G Gran	Anthraquinone	Solvent Green 28	625580	153153
MACROLEX® Fluorescent Yel. 10GN	Coumarin	Solvent Yellow 160:1	–	114476
MACROLEX® Fluorescent Red G	Coumarin	–	–	145355

Shades may differ from the real color due to printing influence.

Suitability

Dyes	Color Index Part I	PS	SB[1]	ABS	SAN	PMMA	PC	PVC-U	PPO	PET	POM	PA 6/ PA 6.6	PBT	PES Fibres
MACROLEX® Yellow 6G Gran	S. Y. 179; D. Y. 201	+	+	+	+	+	+	+	+	+	o	–	o	o
MACROLEX® Yellow 3G Gran	S. Y. 93	+	+	–	+	+	+	+	+	+	–	–	o	–
MACROLEX® Yellow G Gran	S. Y. 114; D. Y. 54	+	+	+	+	+	+	+	+	+	o	–	o	–
MACROLEX® Yellow E2R Gran	–	+	+	+	+	+	+	+	+	+	o	–	o	+
MACROLEX® Yellow RN	P. Y. 147	–	–	–	–	–	–	–	–	+	–	–	–	+
MACROLEX® Orange 3G Gran	S. O. 60	+	+	+	+	+	+	+	+	+	o	+[2]	o	–
MACROLEX® Orange R Gran	S. O. 107; D. O. 47	+	+	+	+	+	+	+	+	+	o	–	o	–
MACROLEX® Red E2G Gran	S. R. 179	+	+	+	+	+	+	+	+	+	o	+	o	–
MACROLEX® Red A	–	+	+	+	+	+	o	+	–	+	–	–	o	–
MACROLEX® Red EG Gran	S. R. 135	+	+	+	+	+	+	+	+	+	o	+	o	+
MACROLEX® Red G Gran	S. R. 111	+	+	+	+	+	+	+	+	–	o	–	–	–
MACROLEX® Red H	–	+	+	–	+	+	o	+	–	+	–	–	o	–
MACROLEX® Red B	S. R. 195	+	+	+	+	+	o	+	–	o	–	–	o	–
MACROLEX® Red 5B Gran	S. R. 52	+	+	+	+	+	+	+	+	+	o	+	o	–
MACROLEX® Red Violet R Gran	D.V. 31; D.V. 26; S. V. 59	+	+	+	+	–	+	+	+	+	o	–	o	+
MACROLEX® Violet 3R Gran	S. V. 36	+	+	+	+	+	+	+	+	+	o	+	o	–
MACROLEX® Violet B Gran	S. V. 13	+	+	+	+	+	+	+	+	+	o	–	o	–
MACROLEX® Violet 3B Gran	S. V. 13	+	+	+	+	+	+	+	+	+	o	–	o	–
MACROLEX® Blue 3R Gran	–	+	+	+	+	+	+	+	+	+	o	+	o	o
MACROLEX® Blue RR Gran	S. B. 97	+	+	+	+	+	+	+	+	+	o	+	o	o
MACROLEX® Blue 2B Gran	S. B. 104; S. B. 87	+	+	+	+	+	+	+	+	+	o	+	o	o
MACROLEX® Green 5B Gran	S. G. 3	+	+	+	+	+	+	+	+	+	o	+	o	o
MACROLEX® Green G Gran	S. G. 28	+	+	+	+	+	+	+	+	+	o	–	o	+
MACROLEX® Fluorescent Yel. 10GN	S. Y. 160:1	+	+	+	+	+	+	+	+	+	o	o	o	–
MACROLEX® Fluorescent Red G	–	+	+	+	+	+	+	+	–	+	o	–	o	–

[1] not suitable for styrene-butadiene block copolymers
[2] limited usage in PA due to sublimation
+ suitable
o suitable with restrictions
– not recommended

Heat stability of MACROLEX® dyes (°C) in plastics

according to DIN EN 12877-2

Dyes	PS	SB	ABS	SAN	PMMA	PC	PA 6	PA 6.6	PET	PBT
MACROLEX® Yellow 6G Gran	300	300	260	280	300	350	–	–	290	280
MACROLEX® Yellow 3G Gran	300	280	–	260	300	340	–	–	280	280
MACROLEX® Yellow G Gran	300	300	300	300	300	340	–	–	290	280
MACROLEX® Yellow E2R Gran	300	300	300	300	300	340	–	–	290	280
MACROLEX® Yellow RN	–	–	–	–	–	–	–	–	300	–
MACROLEX® Orange 3G Gran	300	300	300	300	300	350	300	300	290	280
MACROLEX® Orange R Gran	300	300	300	300	280	320	–	–	290	280
MACROLEX® Red E2G Gran	300	300	300	300	300	350	300	300	290	280
MACROLEX® Red A	300	280	280	300	280	300	–	–	300	–
MACROLEX® Red EG Gran	300	300	280	300	300	350	260	260	290	280
MACROLEX® Red G Gran	300	300	300	300	300	350	280	280	–	–
MACROLEX® Red H	280	280	–	280	260	–	–	–	290	280
MACROLEX® Red B	280	280	280	280	260	300	–	–	280	–
MACROLEX® Red 5B Gran	280	300	300	300	300	350	300	290	290	280
MACROLEX® Red Violet R Gran	300	300	280	300	–	300	–	–	260	280
MACROLEX® Violet 3R Gran	300	300	280	300	300	350	280	260	290	280
MACROLEX® Violet B Gran	300	300	280	300	300	350	–	–	290	280
MACROLEX® Violet 3B Gran	300	300	280	300	300	350	–	–	290	280
MACROLEX® Blue 3R Gran	300	300	300	300	300	340	280	270	290	280
MACROLEX® Blue RR Gran	300	300	300	300	300	340	300	280	290	280
MACROLEX® Blue 2B Gran	300	300	300	300	300	340	280	–	290	280
MACROLEX® Green 5B Gran	300	300	300	300	300	350	280	260	290	280
MACROLEX® Green G Gran	300	300	300	300	300	350	–	–	290	280
MACROLEX® Fluorescent Yel. 10GN	300	300	260	300	300	350	240	240	280	280
MACROLEX® Fluorescent Red G	300	260	240	300	300	350	–	–	290	280

– not recommended

1/3 standard depth with 1 % TiO_2 (ABS 4 % TiO_2, PS 2 % TiO_2)

Plastics and TiO_2 used for testing:

PS: BASF Polystyrene 143E
SB: BASF Polystyrene 472C
ABS: LANXESS Novodur® P2X
SAN: BASF Luran® 368R
PMMA: Röhm Plexiglas® 7H
PC: Bayer MaterialScience Makrolon® 2800
PA 6: LANXESS Durethan® B30S
PA 6.6: LANXESS Durethan® A30H 1.0
PET: Voridian® 9921 W
PBT: LANXESS Pocan® B1505
TiO_2: Kerr McGee Tronox® R-FK-3

The test results were evaluated with the above mentioned conditions and polymers. For other polymers, polymergrades, TiO_2 grades and dyes concentrations, the heatstability can be different from the values above.

Lightfastness of MACROLEX® dyes

according to DIN EN ISO 4892-2

Dyes	PC			PS			PMMA		
	1/3 SD Reduction 1.0 % TiO_2		Transparent 0.05 % dye	**1/3 SD** Reduction 2.0 % TiO_2		Transparent 0.05 % dye	**1/3 SD** Reduction 1.0 % TiO_2		Transparent 0.05 % dye
	Dye content in %	Blue Wool Scale	Blue Wool Scale	**Dye content in %**	Blue Wool Scale	Blue Wool Scale	**Dye content in %**	Blue Wool Scale	Blue Wool Scale
MACROLEX® Yellow 6G Gran	0.070 %	7	8	0.360%	6-7	8	0.070 %	6-7	8
MACROLEX® Yellow 3G Gran	0.142 %	7	8	0.260%	6-7	8	0.142 %	6-7	8
MACROLEX® Yellow G Gran	0.065 %	7	8	0.120%	6-7	8	0.065 %	7	8
MACROLEX® Yellow E2R Gran	0.070 %	7	8	0.140 %	6-7	8	0.070 %	7	8
MACROLEX® Orange 3G Gran	0.155 %	7	8	0.280 %	6	8	0.155 %	6	8
MACROLEX® Orange R Gran	0.045 %	5	8	0.090 %	4	7	0.045 %	3-4	7
MACROLEX® Red E2G Gran	0.160 %	5	8	0.300 %	4-5	8	0.160 %	4	8
MACROLEX® Red A	0.060 %	5	8	0.110 %	4	7	0.060 %	3-4	7
MACROLEX® Red EG Gran	0.210 %	7	8	0.400 %	6	8	0.210 %	7	8
MACROLEX® Red G Gran	0.245 %	4	7	0.470 %	4	6-7	0.245 %	4	6-7
MACROLEX® Red H	–	–	–	0.110 %	5	7-8	0.055 %	6	7-8
MACROLEX® Red B	–	–	–	0.120 %	6	7-8	0.060 %	6-7	7-8
MACROLEX® Red 5B Gran	0.100 %	4-5	7	0.195 %	3-4	7	0.100 %	4-5	7
MACROLEX® Red Violet R Gran	0.105 %	6-7	7-8	0.200 %	6	7-8	–	–	–
MACROLEX® Violet 3R Gran	0.125 %	6-7	7	0.220 %	6	7	0.125 %	6-7	7
MACROLEX® Violet B Gran	0.090 %	6-7	7-8	0.180 %	5-6	7-8	0.090 %	6-7	7-8
MACROLEX® Violet 3B Gran	0.090 %	6-7	7-8	0.180 %	5-6	7-8	0.090 %	6-7	7-8
MACROLEX® Blue 3R Gran	0.110 %	6	8	0.210 %	6	8	0.110 %	6	8
MACROLEX® Blue RR Gran	0.125 %	6	8	0.230 %	6	8	0.125 %	6	8
MACROLEX® Blue 2B Gran	0.125 %	6	8	0.230 %	6	8	0.125 %	6	8
MACROLEX® Green 5B Gran	0.105 %	6	7-8	0.200 %	5-6	7-8	0.105 %	6	7-8
MACROLEX® Green G Gran	0.150 %	7-8	8	0.300 %	7	8	0.150 %	7	8
MACROLEX® Fluorescent Yel. 10GN	0.100 %	5	6-7	0.200 %	3-4	6	0.100 %	4	6
MACROLEX® Fluorescent Red G	0.100 %	5	7	0.200 %	4	7	0.100 %	3-4	7

– not recommended

Plastics and TiO_2 used for testing:

PC: Bayer MaterialScience Makrolon® 2800
PS: BASF Polystyrene® 143E
PMMA: Röhm Plexiglas® 7H
TiO_2: Kerr McGee Tronox® R-FK-3

The test results were evaluated with the above mentioned conditions and polymers. For other polymers, polymergrades, TiO_2 grades and dyes concentrations, the lightfastness can be different from the values above.
The results were evaluated against the 8-step blue wool scale. Fastness to step 8 indicates very good lightfastness and to step 1 poor lightfastness.

Solubility

according to DIN EN ISO 7579

Dyes	Acetone	Benzyl Alcohol	Butyl Acetate	Ethanol	MMA	Methylene Chloride	Styrene Monomer	Xylene	MEK	Toluene	Paraffin 52/54	Stearic Acid
MACROLEX® Yellow 6G Gran	200.00	8.00	95.00	2.00	146.0	555.00	336.0	133.0	350	250	<1	15
MACROLEX® Yellow 3G Gran	9.80	5.80	7.70	0.55	7.0	180.00	51.0	20.0	21	25	2	12
MACROLEX® Yellow G Gran	0.50	1.80	0.40	0.04	0.8	5.20	1.1	1.4	*	*	*	*
MACROLEX® Yellow E2R Gran	0.0	2.50	0.50	0.10	1.5	10.00	3.5	1.6	*	*	*	*
MACROLEX® Yellow RN	–	–	–	–	–	–	–	–	–	–	–	–
MACROLEX® Orange 3G Gran	1.00	4.80	1.40	0.16	1.0	10.00	6.3	4.4	*	*	*	*
MACROLEX® Orange R Gran	3.00	71.00	2.50	0.86	1.6	64.00	5.4	1.4	*	*	1	5
MACROLEX® Red E2G Gran	0.50	20.00	0.70	<0.10	2.0	7.00	4.5	2.5	2	3	*	*
MACROLEX® Red A	0.40	1.00	0.40	0.10	1.0	45.00	4.0	1.0	*	*	*	*
MACROLEX® Red EG Gran	0.05	0.24	<0.05	<0.05	0.2	0.15	1.2	0.6	*	*	*	*
MACROLEX® Red G Gran	4.00	12.00	4.00	0.06	10.0	49.00	14.0	8.0	9	*	1	15
MACROLEX® Red H	9.20	19.00	9.00	1.00	22.0	200.00	65.0	24.0	20	22	1	20
MACROLEX® Red B	0.20	0.50	0.20	<0.1	0.5	40.00	3.5	0.5	*	*	*	*
MACROLEX® Red 5B Gran	0.30	5.00	0.30	0.20	0.5	30.00	3.0	1.8	*	*	1	10
MACROLEX® Red Violet R Gran	20.00	6.00	20.00	0.70	35.0	40.00	25.0	12.0	1	20	1	20
MACROLEX® Violet 3R Gran	2.00	5.50	3.00	0.20	8.5	20.00	30.0	2.5	4	2	<1	10
MACROLEX® Violet B Gran	1.50	4.00	3.00	0.10	5.5	30.00	12.0	8.0	2	7	<1	20
MACROLEX® Violet 3B Gran	1.00	3.50	3.00	0.10	5.0	25.00	12.0	9.0	*	*	*	*
MACROLEX® Blue 3R Gran	20.00	100.00	60.00	1.50	90.0	250.00	100.0	150.0	*	*	*	*
MACROLEX® Blue RR Gran	3.00	5.00	11.00	0.20	10.	240.00	55.0	120.0	13	125	2	5
MACROLEX® Blue 2B Gran	3.00	4.00	8.00	0.10	1.0	240.00	20.0	19.0	*	*	*	*
MACROLEX® Green 5B Gran	1.00	3.50	3.00	0.10	4.5	20.00	12.0	17.0	2	20	1	10
MACROLEX® Green G Gran	2.00	4.00	4.50	0.10	10.0	55.00	25.0	30.0	*	*	1	10
MACROLEX® Fluorescent Yel. 10GN	2.80	12.00	1.40	0.40	2.1	67.00	4.5	1.5	*	*	*	*
MACROLEX® Fluorescent Red G	0.30	0.50	0.15	0.01	0.4	8.00	1.2	0.4	*	*	<1	1

– = not soluble

* = Data not available

Solvent solubility is measured in g/l at room temperature (23°C/73°F)

These items are provided as general information only. They are approximate values and are not considered part of the product specifications.