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Delivering sustainable solutions

SPECIALTY CARBON BLACKS

Technical Data Asia Pacific

ANALYTICAL TEST METHODS

TEST METHOD	ISO	DIN	ASTM
	International Organization for Standardization	German Institute for Standardization	American Society for Testing and Materials
Method for determining the surface area			
BET surface area	ISO 4652	–	D 6556
Iodine adsorption	ISO 1304	DIN 53582	D 1510
Method for determining the structure			
Oil absorption number (OAN)	ISO 4656	–	D 2414
Method for characterizing the specialty carbon black surface			
Volatile matter at 950°C	–	DIN 53552	–
pH value	ISO 787-9	-	D 1512
Method for determining impurities			
Ash content	ISO 1125	-	D 1506
Colorimetric properties			
Blackness value M_v of powder specialty carbon blacks	–	DIN 55979	–
Tint strength of specialty carbon black	ISO 5435	–	D 3265

Methods are not strictly equivalent



SPECIALTY CARBON BLACKS

RECOMMENDED FOR COATING APPLICATIONS

		DIMENSION	JETNESS M_v DIN 55979	RELATIVE TINT STRENGTH IRB 3 = 100%	VOLATILE 950°C DIN 53552	OAN ASTM D 2414	pH VALUE ISO 787-9	ASH ASTM D 1506	BET ASTM D 6556	AVERAGE PRIMARY PARTICLE SIZE TGZ3	AUTOMOTIVE COATINGS	ELECTRO DEPOSITION COATINGS	GENERAL INDUSTRIAL COATING	METALLICS	DECORATIVE COATING	WET PU COLORING	ANTISTATIC AND CONDUCTIVE COATING	SOLVENT BORNE	WATERBORNE	POWDER COATING
				%	%	ml/100g	%	%	m ² /g	nm										
COLOUR BLACK FW 171 ¹⁾	HCF	295	137	2.0	108	8.0	0.30	600	11		●	●	●						●	●
COLOUR BLACK FW 255	HCF	306*	135	12.0	108	2.5	0.50	600	11		●	●	●					●	●	●
COLOUR BLACK FW 310*	HCF	310*	130	12.0	102	2.5	0.50	600	11		●	●	●					●	●	●
COLOUR BLACK FW 200	HCG	286	128	20.0	160	2.5	0.02	550	13		●	●	●					●		●
COLOUR BLACK FW 2	HCG	283	126	16.5	155	2.5	0.02	470	13		●	●	●					●		●
COLOUR BLACK FW 285 ¹⁾	HCG	291	140	5.0	155	3.5	0.02	350	11		●		●						●	
COLOUR BLACK FW 1	HCG	280	120	5.0	150	3.5	0.02	320	13		●	●							●	
COLOUR BLACK FW 18	HCG	273	122	5.0	140	4.5	0.02	260	15		●	●	●					●		●
COLOUR BLACK S 170 ¹⁾	MCG	270	122	5.0	135	4.0	0.02	230	17			●						●		
COLOUR BLACK S 160	MCG	263	121	5.0	128	4.0	0.02	180	20			●						●		
HIBLACK® 930L ¹⁾	HCF	-	150	1.5	73	8.0	0.30	289	14			●								●
HIBLACK® 600L	MCF	260	157	1.5	77	8.0	0.60	246	16			●								●
HIBLACK® 21LB	RCF	-	117	1.0	61	8.0	0.50	85	26			●						●		●
HIBLACK® 20L ¹⁾	RCF	241	120	1.2	59	8.0	0.40	81	28			●								●
HIBLACK® 200L ¹⁾	RCF	-	115	1.0	66	8.0	0.30	76	28			●								●
HIBLACK® 160	LCF	-	60	1.5	85	8.0	0.20	35	55			●								
LAMP BLACK 101	LB	209	26	-	135	8.0	0.02	29	95			●		●				●	●	
NEROX® 600 ¹⁾	RCF	256	130	3.0	103	2.5	0.10	130	22			●						●	●	
NEROX® 605 ¹⁾	RCF	-	138	3.0	72	2.5	0.30	118	22							●		●	●	
NEROX® 505 ¹⁾	RCF	255	134	3.0	68	2.5	0.30	100	24			●				●		●	●	●
NEROX® 510 ¹⁾	RCF	245	120	3.0	104	2.5	0.30	102	24		●	●						●	●	
NEROX® 1000 ¹⁾	LCF	-	61	2.0	89	2.5	0.10	36	50			●		●				●	●	●
PRINTEX® XE2 B ²⁾	ECB	261	-	-	420	7.8	1.6	1000	30								●	●	●	
PRINTEX® 95 ²⁾	HCF	258	136	1.0	52	9.5	0.80	250	15			●								●
PRINTEX® L	CB	246	103	0.8	120	9.0	0.10	150	23								●	●	●	
PRINTEX® U	RCG	246	112	5.0	115	4.5	0.02	92	25			●		●				●	●	
PRINTEX® V ¹⁾	RCG	246	112	5.0	115	4.5	0.02	92	25			●		●				●	●	●
PRINTEX® 300	RCF	242	108	0.8	68	9.5	0.20	80	27		●								●	
PRINTEX® 200 ³⁾	LCF	230	89	0.6	45	9.0	0.15	48	47		●								●	
PRINTEX® G	LCF	223	57	0.7	104	9.0	0.10	35	51			●		●				●	●	●
SPECIAL BLACK 6	HCG	275	128	18.0	142	2.5	0.02	450	17			●						●		●
SPECIAL BLACK 5	MCG	269	115	15.0	125	2.5	0.02	320	20			●						●		●
SPECIAL BLACK 4	RCG	244	107	14.0	115	3.0	0.02	180	25			●		●				●		●
SPECIAL BLACK 250 ¹⁾	LCF	220	88	1.4	45	3.5	0.30	48	47			●						●		●
SPECIAL BLACK 100 ¹⁾	LCF	217	60	1.6	100	3.3	0.10	35	51			●		●				●		●

* In Waterborne system

1) Only available as powder

2) Only available as beaded specialty carbon black

3) Electrical conductivity of the aqueous extract $\leq 100 \mu S/cm$

Specific gravity of specialty carbon black 1.7 – 1.9 g/cm³

Very high electrical conductivity: PRINTEX® XE2 B

Very high electrical resistivity: SPECIAL BLACK 4 A

The data for the beaded blacks may deviate from the given values.

Nomenclature

HCG High color gas

MCG Medium color gas

RCG Regular color gas
(Degussa gas black process)

HCF High color furnace

MCF Medium color furnace

RCF Regular color furnace

LCF Low color furnace

LB Lamp black

ECB Extra conductive black

CB Conductive black

ORION SPECIALTY CARBON BLACKS



Nomenclature

HCG

High color gas

RCG

Regular color gas

(Degussa gas black process)

HCF

High color furnace

MCF

Medium color furnace

RCF

Regular color furnace

LCF

Low color furnace

LB

Lamp black

TB

Thermal black

CB

Conductive black

ECB

Extra conductive black

AB

Acetylene black

	DIMENSION	BLACKNESS VALUE M_v following DIN 55979	RELATIVE TINT STRENGTH IRB 3 = 100 % following ASTM D 3265	VOLATILE MATTER AT 950°C following DIN 53552	OIL ABSORPTION NUMBER following ASTM D 2414	pH VALUE following ISO 787-9	ASH CONTENT following ASTM D 1506	BET SURFACE AREA following ASTM D 6556	AVERAGE PRIMARY PARTICLE SIZE following internal Method TG23
			%	%	ml/100g		%	m ² /g	nm
AROSPERSE® 11 ²⁾	RCF	-	120	0.6	116	8.5	0.08	120	19
AROSPERSE® 138 ^{2) 5)}	RCF	-	120	0.6	95	8.5	0.05	120	19
AROSPERSE® 26 ²⁾	RCF	-	130	0.6	60	8.5	0.05	120	25
HIBLACK® 980B ²⁾	HCF	-	160	1.7	75	8.0	0.10	300	-
HIBLACK® 970LB ²⁾	HCF	-	152	1.5	65	8.0	0.30	295	14
HIBLACK® 930L ¹⁾	HCF	-	150	1.5	73	8.0	0.30	289	14
HIBLACK® 890 ^{5) 6)}	HCF	264	160	1.5	98	8.0	0.20	270	15
HIBLACK® 600L	MCF	260	157	1.5	77	8.0	0.60	246	16
HIBLACK® 50L	MCF	257	150	1.5	61	8.0	0.30	200	18
HIBLACK® 49L	MCF	-	142	1.5	60	8.0	0.30	151	19
HIBLACK® 45LB ²⁾	RCF	-	135	1.5	52	8.5	0.30	122	20
HIBLACK® 30	RCF	245	117	1.0	110	8.5	0.10	110	23
HIBLACK® 20	RCF	241	104	1.0	105	8.5	0.10	79	27
HIBLACK® 200B ²⁾	RCF	-	100	1.0	105	8.5	0.05	79	28
HIBLACK® SP1 ²⁾	RCF	-	98	1.1	102	8.0	0.05	77	25
HIBLACK® 16BT ²⁾	RCF	-	113	1.5	72	8.5	0.20	80	27
HIBLACK® 150B ²⁾	LCF	-	58	1.0	122	8.0	0.07	42	45
HIBLACK® 160B	LCF	-	60	1.5	85	8.5	0.10	36	55
HIBLACK® 170	LCF	-	48	1.5	85	8.5	0.10	26	60
HIBLACK® 40B2 ²⁾	CB	-	105	1.5	150	8.0	0.10	125	23
HIBLACK® 29 ²⁾	RCF	-	118	1.3	114	9.0	0.15	120	20
LAMP BLACK 101	LB	209	26	-	135	8.0	0.02	29	95
PRINTEX® XE2 B ²⁾	ECB	261	-	-	420	7.8	1.60	1000	30
PRINTEX® kappa 60 ²⁾	CB	-	80	1.1	175	8.0	0.01	58	-
PRINTEX® kappa 10 ²⁾	CB	-	89	0.6	145	9.0	0.01	74	30
PRINTEX® 80 ⁵⁾	MCF	261	136	1.2	105	9.0	0.10	225	16
PRINTEX® 85 ⁵⁾	MCF	254	136	1	54	9.5	0.60	200	16
PRINTEX® kappa 100	AB	-	-	-	258	-	0.00	62	-
PRINTEX® HV ^{2) 4)}	CB	240	98	0.7	125	9.0	0.10	125	20
PRINTEX® alpha, alpha-A ^{2) 4) 5) 6)}	RCF	240	103	0.5	100	8.7	0.10	101	20
PRINTEX® zeta A ^{2) 4)}	RCF	239	98	0.5	99	8.7	0.10	79	25
HIBLACK® SF1 ²⁾	RCF	-	115	1.0	95	8.5	0.05	116	19
HIBLACK® SF2 ²⁾	RCF	-	113	-	115	8.5	0.05	118	19

1) Only available as powder

2) Only available as beaded specialty carbon black

4) Total Sulfur content ≤ 0.1 %, electrical conductivity of the aqueous Extract ≤ 150 µS/cm

5) Following products, used for food contact application, which complies with 21CFR 178.3297(FDA) can be found in a separate brochure:

- HIBLACK® F 890B
- PRINTEX® F 80
- AROSPERSE® F138
- PRINTEX® F 85
- PRINTEX® F alpha

RECOMMENDED FOR POLYMER APPLICATIONS

SELECTED POLYMERS								TYPICAL APPLICATIONS											
POLYOLEFINES PE, PP, COPO	BIOPOLYMERS PLA	STYRENE POLYMERS PS, SAN, ABS, ASA	POLYAMIDES PA6, PA6.6, PA12	POLYESTERS PET, PBT	POLYVINYLCHLORIDES PVC-P, PVC-U	ENGINEERED POLYMERS PMMA, PC, BLENDS	THERMOSETS UP, EP	INSULATION & FOAMS EPS, PUR, PP, PE	WIRE & CABLES PE-COPO	PIPES PE, PP, PA, PVC	FILMS PE, PP, COPO, PVC	FIBRES PET, PA, PP	ADHESIVE & SEALANTS PUR, PIB, POLYSULFIDE, SILICONS, MS POLYMERS	MASTERBATCHES & COMPOUNDS					
															AROSPERSE® 11 ²⁾				
															AROSPERSE® 138 ^{2) 5)}				
															AROSPERSE® 26 ²⁾				
															HIBLACK® 980B ²⁾				
															HIBLACK® 970LB ²⁾				
															HIBLACK® 930L ¹⁾				
															HIBLACK® 890 ^{5) 6)}				
															HIBLACK® 600L				
															HIBLACK® 50L				
															HIBLACK® 49L				
															HIBLACK® 45LB ²⁾				
															HIBLACK® 30				
															HIBLACK® 20				
															HIBLACK® 200B ²⁾				
															HIBLACK® SP1 ²⁾				
															HIBLACK® 16BT ²⁾				
															HIBLACK® 150B ²⁾				
															HIBLACK® 160B				
															HIBLACK® 170				
															HIBLACK® 40B2 ²⁾				
															HIBLACK® 29 ²⁾				
															LAMP BLACK 101				
															PRINTEX® XE2 B ²⁾				
															PRINTEX® kappa 60 ²⁾				
															PRINTEX® kappa 10 ²⁾				
															PRINTEX® 80 ⁵⁾				
															PRINTEX® 85 ⁵⁾				
															PRINTEX® kappa 100				
															PRINTEX® HV ^{2) 4)}				
															PRINTEX® alpha, alpha-A ^{2) 4) 5) 6)}				
															PRINTEX® zeta A ^{2) 4)}				
															HIBLACK® SF1 ²⁾				
															HIBLACK® SF2 ²⁾				

6) Following products, used for spin fibres, can be found in a separate brochure:
 • PRINTEX® L 6 SQ only available as beaded specialty carbon black
 • PRINTEX® alpha SQ only available as beaded specialty carbon black

8) Content of renewable material
 >85% calculated

● Jet black coloring
 ● Coloring
 ● Tinting

* Conductivity
 ● UV-Stabilizing
 ○ Reinforcement / Rheology

Specific gravity of specialty carbon blacks: 1.7-1.9 g/cm³
 The data for beaded blacks may deviate from the given values

ORION SPECIALTY CARBON BLACKS



	DIMENSION	BLACKNESS VALUE M _v following DIN 55979	RELATIVE TINT STRENGTH IRB 3 = 100 % following ASTM D 3265	VOLATILE MATTER AT 950°C following DIN 53552	OIL ABSORPTION NUMBER following ASTM D 2414	pH VALUE following ISO 787-9	ASH CONTENT following ASTM D 1506	BET SURFACE AREA following ASTM D 6556	AVERAGE PRIMARY PARTICLE SIZE following internal Method TGZ3	PRODUCT SAFETY ISSUES FOR NIP SPECIFIED ADDITIONALLY
Type			%	%	ml/100g		%	m ² /g	nm	
HIBLACK® 890	HCF	264	160	1.5	98	8.0	0.20	270	15	-
HIBLACK® 40L ¹⁾	RCF	249	135	1.0	60	8.0	0.30	118	22	-
HIBLACK® 30	RCF	245	117	1.0	110	8.5	0.10	110	23	-
HIBLACK® 30L ¹⁾	RCF	242	128	1.0	61	8.0	0.30	95	24	-
HIBLACK® 21LB	RCF	-	117	1.0	61	8.0	0.50	85	26	-
HIBLACK® 20L ¹⁾	RCF	241	120	1.2	59	8.0	0.40	81	28	-
HIBLACK® 20	RCF	241	104	1.0	107	8.5	0.10	79	27	-
HIBLACK® 200L ¹⁾	RCF	-	115	1.0	66	8.0	0.30	76	28	-
HIBLACK® 5L ¹⁾	RCF	243	110	1.5	78	8.0	0.30	68	30	-
HIBLACK® 10 ¹⁾	RCF	238	104	1.0	101	8.0	0.20	66	30	-
HIBLACK® 125L	LCF	-	92	0.5	66	9.0	0.3	58	35	-
HIBLACK® 160	LCF	-	60	1.5	85	8.0	0.20	36	55	-
NEROX® 600 ¹⁾	RCF	256	130	3.0	103	2.5	0.10	130	22	-
NEROX® 605 ¹⁾	RCF	-	138	3.0	72	2.5	0.30	118	22	-
NEROX® 505 ¹⁾	RCF	255	134	3.0	68	2.5	0.30	100	24	-
NEROX® 555 ¹⁾	RCF	-	130	3.0	75	2.5	0.30	94	26	-
NEROX® 305 ¹⁾	RCF	-	127	3.0	68	2.5	0.30	85	28	-
NEROX® 545 ¹⁾	RCF	-	122	3.0	75	2.5	0.30	80	29	-
NEROX® 3500 ¹⁾	LCF	-	104	1.8	52	2.5	0.30	60	31	-
NEROX® 2500 ¹⁾	LCF	-	90	1.8	57	2.5	0.30	50	48	-
NIPex® 180IQ ¹⁾	HCG	273	-	5.0	140	4.5	0.02	260	15	-
NIPex® 170IQ ¹⁾	MCG	270	-	5.0	135	4.5	0.02	238	17	-
NIPex® 150	RCG	-	-	9.0	120	4.0	0.02	175	25	●
NIPex® 160IQ ¹⁾	MCG	263	-	5.0	128	4.5	0.02	180	20	-
NIPex® 60 ¹⁾	RCF	244	-	1.0	118	10.0	0.1	115	21	●
NIPex® 35	LCF	236	-	0.5	42	9.0	0.3	60	31	●
PRINTEX® U	RCG	246	112	5.0	115	4.5	0.02	92	25	-
PRINTEX® 45	RCF	246	117	0.9	54	9.0	0.30	90	26	-
PRINTEX® 35	LCF	236	100	0.5	42	9.0	0.30	60	31	-
PRINTEX® 165 ¹⁾	LCF	-	90	0.5	60	8.0	0.50	57	35	-
PRINTEX® 25	LCF	230	89	0.6	45	9.0	0.30	48	47	-
SPECIAL BLACK 4	RCG	244	107	14.0	115	3.0	0.02	182	25	-
SPECIAL BLACK 4A ^{1) 7)}	RCG	247	107	14.0	95	3.0	0.02	180	25	-
SPECIAL BLACK 550 ¹⁾	RCF	247	115	1.8	52	4.0	0.60	112	25	-
SPECIAL BLACK 350 ¹⁾	LCF	232	104	1.4	43	3.5	0.30	62	31	-
SPECIAL BLACK 250 ¹⁾	LCF	220	88	1.4	45	3.5	0.30	48	47	-
XPB 441	RCF	-	119	1.0	62	8.0	0.50	80	28	-

1) Only available as powder

7) Volatile matter 105°C approx. 7.5 %

Nomenclature

HCG

High color gas

MCG

Medium color gas

RCG

Regular color gas

(Degussa gas black process)

HCF

High color furnace

RCF

Regular color furnace

LCF

Low color furnace

LB

Lamp black

RECOMMENDED FOR PRINTING INKS AND NON IMPACT PRINTING APPLICATIONS

SHEETFEED/LETTERPRESS	HEATSET	COLDSET	PUBLICATION GRAVURE INKS	LIQUID INKS (FLEXO/GRAVURE) SOLVENT BASED	LIQUID INKS (FLEXO/GRAVURE) WATER BASED	SCREEN INKS	UV CURING INKS	UV CURING INKJET INKS	AQUEOUS INKJET INKS	NON-AQUEOUS INKJET INKS	TONER	Type
										●	●	HIBLACK® 890
●	●											HIBLACK® 40L ¹⁾
					●							HIBLACK® 30
●	●				●	●						HIBLACK® 30L ¹⁾
●	●				●							HIBLACK® 21LB
●	●				●							HIBLACK® 20L ¹⁾
		●			●							HIBLACK® 20
●	●				●							HIBLACK® 200L ¹⁾
●	●	●										HIBLACK® 5L ¹⁾
		●			●							HIBLACK® 10 ¹⁾
●	●	●	●	●	●	●						HIBLACK® 125L
		●		●	●							HIBLACK® 160
				●		●						NEROX® 600 ¹⁾
●	●					●	●					NEROX® 605 ¹⁾
●	●						●					NEROX® 505 ¹⁾
●	●			●		●	●	●				NEROX® 555 ¹⁾
●	●			●			●	●				NEROX® 305 ¹⁾
●	●			●			●	●				NEROX® 545 ¹⁾
●				●		●	●	●				NEROX® 3500 ¹⁾
				●			●	●		●		NEROX® 2500 ¹⁾
									●			NIPex® 180IQ ¹⁾
									●			NIPex® 170IQ ¹⁾
										●	●	NIPex® 150
									●			NIPex® 160IQ ¹⁾
										●	●	NIPex® 60 ¹⁾
										●	●	NIPex® 35
				●	●	●						PRINTEX® U
●	●		●		●							PRINTEX® 45
●	●		●	●	●	●						PRINTEX® 35
●	●		●	●	●	●						PRINTEX® 165 ¹⁾
●	●		●	●		●						PRINTEX® 25
				●	●	●	●					SPECIAL BLACK 4
				●	●	●						SPECIAL BLACK 4A ^{1) 7)}
●				●			●	●				SPECIAL BLACK 550 ¹⁾
●				●			●	●				SPECIAL BLACK 350 ¹⁾
				●			●	●		●		SPECIAL BLACK 250 ¹⁾
●	●				●							XPB 441

- Especially recommended
 ○ Well suitable

Specific gravity of specialty carbon blacks: 1.7 – 1.9 g/cm³
 The data for beaded blacks may deviate from the given values.

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