

# Specialty carbon blacks

Technical Data Asia Pacific



**orion** ENGINEERED  
CARBONS  
*Focused. Innovative. Responsive.*

## Analytical test methods

Test method	ISO	DIN	ASTM
	International Organization for Standardization	German Institute for Standardization	American Society for Testing and Materials
<b>Method for determining the surface area</b>			
BET Surface area	ISO 4652	-	D 6556
Iodine adsorption	ISO 1304	DIN 53582	D 1510
<b>Method for determining the structure</b>			
Oil absorption number (OAN)	ISO 4656	-	D 2414
<b>Method for characterizing the carbon black pigment surface</b>			
Volatile matter at 950°C	-	DIN 53552	-
pH value	ISO 787-9	-	D 1512
<b>Method for determining impurities</b>			
Ash content	ISO 1125	-	D 1506
<b>Colorimetric properties</b>			
Blackness value $M_v$ of powder specialty carbon black	-	DIN 55979	-
Relative Blackness Value MYr & absolute contribution of hue	internal method PA 1540 submitted for ISO Standard	-	-
Tint strength of carbon black	ISO 5435	-	D 3265

Methods are not strictly equivalent



Dimension	Specialty carbon blacks									Recommended for coating applications								
	Jetness M <sub>v</sub> DIN 55979	Relative tint strength IRB 3 = 100% ASTM D 3265	Volatiles 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 <sup>2</sup> /g	nm											
COLOUR BLACK FW 171 <sup>1)</sup>	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	450	13	●	●	●					●	●
COLOUR BLACK FW 285 <sup>1)</sup>	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 <sup>1)</sup>	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 <sup>1)</sup>	HCF	-	145	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 <sup>1)</sup>	RCF	241	120	1.2	59	8.0	0.40	81	28		●						●	
HIBLACK® 200L <sup>1)</sup>	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 <sup>1)</sup>	RCF	256	130	3.0	103	2.5	0.10	130	22		●					●	●	
NEROX® 605 <sup>1)</sup>	RCF	-	134	3.0	72	2.5	0.30	118	22				●			●	●	
NEROX® 505 <sup>1)</sup>	RCF	255	134	3.0	68	2.5	0.30	103	24		●		●			●	●	●
NEROX® 510 <sup>1)</sup>	RCF	245	120	3.0	104	2.5	0.30	102	24	●	●					●	●	
NEROX® 1000 <sup>1)</sup>	LCF	-	61	2.0	89	2.5	0.10	36	50		●	●				●	●	●
PRINTEX® XE2 B <sup>2)</sup>	ECB	261	-	-	420	7.8	1.6	1000	30					●		●	●	
PRINTEX® 95 <sup>2)</sup>	HCF	258	136	1.0	52	9.5	0.80	250	15		●							●
PRINTEX® L	RCF	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 <sup>1)</sup>	RCG	246	112	5.0	115	4.5	0.02	92	25		●	●				●	●	●
PRINTEX® 300 <sup>3)</sup>	RCF	242	113	0.8	68	9.5	0.20	80	27	●						●		
PRINTEX® 200 <sup>3)</sup>	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 <sup>1)</sup>	LCF	220	88	2.0	47	3.5	0.30	48	47		●					●		●
SPECIAL BLACK 100 <sup>1)</sup>	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 ≤100µS/cm

Specific gravity of specialty carbon black 1.7 – 1.9g/cm<sup>3</sup>

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

HCF High color furnace

MCF Medium color furnace

RCF Regular color furnace

LCF Low color furnace

LB Lamp black

ECB Extra conductive black

(Degussa gas black process)

## 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
			%	%	ml/100g		%	m <sup>2</sup> /g	nm
AROSPERSE® 11 <sup>2)</sup>	RCF	-	120	0.6	116	8.5	0.08	120	19
AROSPERSE® 138 <sup>2)5)</sup>	RCF	-	120	0.6	95	8.5	0.05	120	19
AROSPERSE® 26 <sup>2)</sup>	RCF	-	130	0.6	60	8.5	0.05	120	25
AROSPERSE® 15	TB	-	10.5	0.2	40	10.0	0.10	9	280
HIBLACK® 970LB <sup>2)</sup>	HCF	-	152	1.5	65	8.0	0.30	295	14
HIBLACK® 930L <sup>1)</sup>	HCF	-	150	1.5	73	8.0	0.30	289	14
HIBLACK® 890 <sup>5)6)</sup>	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 <sup>2)</sup>	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 <sup>2)</sup>	RCF	-	100	1.0	105	8.5	0.05	79	28
HIBLACK® SP1 <sup>2)</sup>	RCF	-	98	1.1	102	8.0	0.05	77	25
HIBLACK® 5L <sup>1)</sup>	RCF	243	110	1.0	78	8.0	0.30	68	30
HIBLACK® 150B <sup>2)</sup>	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 <sup>2)</sup>	CB	-	105	1.5	150	8.0	0.10	125	23
HIBLACK® 420B <sup>2)</sup>	CB	-	95	1.5	153	8.0	0.05	80	24
LAMP BLACK 101	LB	209	26	-	135	8.0	0.02	29	95
PRINTEX® XE2 B <sup>2)</sup>	ECB	261	-	-	420	7.8	1.60	1000	30
PRINTEX® 90	HCF	265	141	1.0	98	9.0	0.40	350	14
PRINTEX® L6 <sup>6)</sup>	RCF	249	114	1.2	126	9.0	0.10	270	18
PRINTEX® 80 <sup>5)</sup>	MCF	261	136	1.2	105	9.0	0.10	225	16
PRINTEX® 85 <sup>5)</sup>	MCF	254	136	1.2	54	9.0	0.10	200	16
PRINTEX® kappa 70 <sup>2)</sup>	CB	-	-	-	170	7.5	0.15	240	-
PRINTEX® HV <sup>2)4)</sup>	CB	240	98	0.7	125	9.0	0.10	125	20
PRINTEX® alpha, alpha-A <sup>2)4)5)6)</sup>	RCF	240	103	0.5	100	8.7	0.10	101	20
PRINTEX® Nature <sup>8)</sup>	RCF	235	100	0.9	68	9.0	0.20	85	27
PRINTEX® zeta A <sup>2)4)</sup>	RCF	242	98	0.7	99	8.0	0.02	77	25
HIBLACK® SF1 <sup>2)</sup>	RCF	-	115	1.0	95	8.5	0.05	116	19
HIBLACK® SF2 <sup>2)</sup>	RCF	-	113	-	115	8.5	0.05	118	19

### 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

1) Only available as powder

2) Only available as beaded specialty carbon black

4) Total Sulfur content  $\leq 0.1\%$ , electrical conductivity of the aqueous Extract  $\leq 150 \mu\text{S}/\text{cm}$

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 85
- PRINTEX® F 80
- PRINTEX® F alpha
- AROSPERSE® F138

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 PMMMA, 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	
●●	●●		●●	●●		●●	●●		*	●●	●●	●●		●●	AROSPERSER <sup>®</sup> 11 <sup>2)</sup>
●●			●●	●●		●●	●●					●			AROSPERSER <sup>®</sup> 138 <sup>2) 5)</sup>
●●			●●	●●		●●	●●					●			AROSPERSER <sup>®</sup> 26 <sup>2)</sup>
●								●●							AROSPERSER <sup>®</sup> 15
		●	●			●								●	HIBLACK <sup>®</sup> 970LB <sup>2)</sup>
		●	●			●								●	HIBLACK <sup>®</sup> 930L <sup>1)</sup>
●		●	●	●		●	●					●		●	HIBLACK <sup>®</sup> 890 <sup>5) 6)</sup>
●		●				●	●							●	HIBLACK <sup>®</sup> 600L
●	●	●	●			●	●		●	●	●			●	HIBLACK <sup>®</sup> 50L
●	●	●	●			●	●		●	●	●			●	HIBLACK <sup>®</sup> 49L
●		●	●			●	●							●	HIBLACK <sup>®</sup> 45LB <sup>2)</sup>
●●			●●	●●	●●				●●	●●	●●	●●	●○	●●	HIBLACK <sup>®</sup> 30
●●	●●	●●	●●	●●						●●	●●		●○	●●	HIBLACK <sup>®</sup> 20
●●	●●	●●	●●	●●						●●	●●	●●	●○	●●	HIBLACK <sup>®</sup> 200B <sup>2)</sup>
●●		●●	●●	●●		●●	●●		*	●●	●●	●●		●●	HIBLACK <sup>®</sup> SP1 <sup>2)</sup>
					●		●					●			HIBLACK <sup>®</sup> 5L <sup>1)</sup>
*		*	*		*	*		●●	*		●			*	HIBLACK <sup>®</sup> 150B <sup>2)</sup>
●		●	●								●			●	HIBLACK <sup>®</sup> 160B
●	●	●	●	●	●	●					●		●	●	HIBLACK <sup>®</sup> 170
*		*	*		*	*	*			*				*	HIBLACK <sup>®</sup> 40B2 <sup>2)</sup>
*		*	*		*	*	*		*		*			*	HIBLACK <sup>®</sup> 420B <sup>2)</sup>
●	●	●	●	●	●	●	●	●●				●		●	LAMP BLACK 101
*			*		*	*	*			*	*			*	PRINTEX <sup>®</sup> XE2 B <sup>2)</sup>
●		●	●	●		●				*		●		●	PRINTEX <sup>®</sup> 90
*		*	*		*	*	*			*		●			PRINTEX <sup>®</sup> L6 <sup>6)</sup>
												●○	●	●	PRINTEX <sup>®</sup> 80 <sup>5)</sup>
●	●	●	●		●	●			●	●	●			●	PRINTEX <sup>®</sup> 85 <sup>5)</sup>
*		*	*		*	*	*		*		*			*	PRINTEX <sup>®</sup> kappa 70 <sup>2)</sup>
*		*	*		*	*	*		*		*			*	PRINTEX <sup>®</sup> HV <sup>2) 4)</sup>
●●	●●	●●	●●	●●		●●	●●		*	●●	●●	●●		●●	PRINTEX <sup>®</sup> alpha, alpha-A <sup>2) 4) 5) 6)</sup>
●●	●●	●●	●●	●●						●●	●●		●○	●●	PRINTEX <sup>®</sup> Nature <sup>8)</sup>
●●	●●	●●	●●	●●		●●	●●		●	●●	●●	●●		●●	PRINTEX <sup>®</sup> zeta A <sup>2) 4)</sup>
●●			●●	●●		●●	●●					●			HIBLACK <sup>®</sup> SF1 <sup>2)</sup>
●●			●●	●●		●●	●●					●			HIBLACK <sup>®</sup> SF2 <sup>2)</sup>

6) Following products, used for spin fibres, can be found in a separate brochure:  
 - PRINTEX<sup>®</sup> L 6 SQ only available as beaded specialty carbon black  
 - PRINTEX<sup>®</sup> 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/cm<sup>3</sup>  
 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 TCZ3	Product safety issues for NIP specified additionally
			%	%	ml/100g		%	m <sup>2</sup> /g	nm	
Type										
HIBLACK® 890	HCF	264	160	1.5	98	8.0	0.20	270	15	-
HIBLACK® 40L <sup>1)</sup>	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 <sup>1)</sup>	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 <sup>1)</sup>	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 <sup>1)</sup>	RCF	-	115	1.0	66	8.0	0.30	76	28	-
HIBLACK® 5L <sup>1)</sup>	RCF	243	110	1.5	78	8.0	0.30	68	30	-
HIBLACK® 10 <sup>1)</sup>	RCF	238	104	1.0	101	8.0	0.20	66	30	-
HIBLACK® 160	LCF	-	60	1.5	85	8.0	0.20	36	55	-
NEROX® 600 <sup>1)</sup>	RCF	-	130	3.0	103	2.5	0.10	130	22	-
NEROX® 605 <sup>1)</sup>	RCF	-	134	3.0	72	2.5	0.30	118	22	-
NEROX® 505 <sup>1)</sup>	RCF	-	134	3.0	68	2.5	0.30	100	24	-
NEROX® 555 <sup>1)</sup>	RCF	-	128	3.0	75	2.5	0.30	94	25	-
NEROX® 305 <sup>1)</sup>	RCF	-	127	3.0	68	2.5	0.30	85	28	-
NEROX® 545 <sup>1)</sup>	RCF	-	122	3.0	75	2.5	0.30	80	29	-
NEROX® 3500 <sup>1)</sup>	LCF	-	104	1.8	52	2.5	0.30	60	31	-
NEROX® 2500 <sup>1)</sup>	LCF	-	90	1.8	57	2.5	0.30	50	48	-
NIPex® 90 <sup>1)</sup>	HCF	-	-	1.0	98	9.0	0.4	350	14	●
NIPex® 180IQ <sup>1)</sup>	HCG	-	-	5.0	140	4.5	0.02	260	15	-
NIPex® 170IQ <sup>1)</sup>	MCG	-	-	5.0	135	4.5	0.02	238	17	-
NIPex® 150	RCG	-	-	10.0	123	4.0	0.02	185	25	●
NIPex® 160IQ <sup>1)</sup>	MCG	-	-	5.0	128	4.5	0.02	180	20	-
NIPex® 60 <sup>1)</sup>	RCF	-	-	1.0	118	10.0	0.1	115	21	●
NIPex® 35	LCF	-	-	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 <sup>1)</sup>	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 <sup>1) 7)</sup>	RCG	244	107	14.0	95	3.0	0.02	180	25	-
SPECIAL BLACK 550 <sup>1)</sup>	RCF	248	115	1.8	52	4.0	0.60	112	25	-
SPECIAL BLACK 350 <sup>1)</sup>	LCF	232	104	1.4	43	3.5	0.30	62	31	-
SPECIAL BLACK 535 <sup>2)</sup>	LCF	-	101	1.3	44	3.6	0.30	62	31	-
SPECIAL BLACK 250 <sup>1)</sup>	LCF	220	88	1.6	47	3.5	0.30	48	47	-
XPB 441	RCF	-	119	1.0	62	8.0	0.50	80	28	-

1) Only available as powder

2) Only available as beaded specialty carbon black

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

Sheetfed/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 <sup>1)</sup>
					●							HIBLACK® 30
●	●				◐	●						HIBLACK® 30L <sup>1)</sup>
●	●				◐							HIBLACK® 21LB
●	●				●							HIBLACK® 20L <sup>1)</sup>
		●			●							HIBLACK® 20
●	●				●							HIBLACK® 200L <sup>1)</sup>
●	●	●			●							HIBLACK® 5L <sup>1)</sup>
		●			●							HIBLACK® 10 <sup>1)</sup>
		●		◐	◐							HIBLACK® 160
				●		●						NEROX® 600 <sup>1)</sup>
●	●					●	◐					NEROX® 605 <sup>1)</sup>
●	●						●					NEROX® 505 <sup>1)</sup>
●	●			◐		●	●	●				NEROX® 555 <sup>1)</sup>
●	●			●			●	●				NEROX® 305 <sup>1)</sup>
●	●			●			●	●				NEROX® 545 <sup>1)</sup>
●				●		●	●	●				NEROX® 3500 <sup>1)</sup>
				●			●	●		●		NEROX® 2500 <sup>1)</sup>
									●		●	NIPex® 90 <sup>1)</sup>
									●			NIPex® 180IQ <sup>1)</sup>
									●			NIPex® 170IQ <sup>1)</sup>
										●	●	NIPex® 150
									●			NIPex® 160IQ <sup>1)</sup>
										◐	●	NIPex® 60 <sup>1)</sup>
										●	●	NIPex® 35
				◐	●	●						PRINTEX® U
●	●		◐		●							PRINTEX® 45
●	●		●	●	◐	◐						PRINTEX® 35
●	●		●	●	◐	◐						PRINTEX® 165 <sup>1)</sup>
◐	●		●	●		◐						PRINTEX® 25
				●	◐	●	●					SPECIAL BLACK 4
				●	◐	●						SPECIAL BLACK 4A <sup>1)7)</sup>
◐				◐			◐	◐				SPECIAL BLACK 550 <sup>1)</sup>
◐				●			●	●				SPECIAL BLACK 350 <sup>1)</sup>
				●			●	●				SPECIAL BLACK 535 <sup>2)</sup>
				●			●	●		●		SPECIAL BLACK 250 <sup>1)</sup>
●	●				●							XPB 441

● Especially recommended  
◐ Well suitable

Specific gravity of specialty carbon blacks: 1.7 – 1.9g/cm<sup>3</sup>  
The data for beaded blacks may deviate from the given values.



*Focused. Innovative. Responsive.*

#### The Americas

Orion Engineered Carbons LLC  
1700 City Plaza Drive, Suite 300  
Spring, TX 77389  
USA  
Phone +1 832 445 3300

AMERICAS@orioncarbons.com

#### Europe/ Middle East/ Africa

Orion Engineered Carbons GmbH  
Frankfurter Straße 60 - 68  
65760 Eschborn  
Germany  
Phone +49 6196 771 929 100

EMEA@orioncarbons.com

#### Asia Pacific

Orion Engineered Carbons (China) Investment Co., Ltd.  
Room 2301, 2302, 2307, BM InterContinental Business Center  
100 Yutong Road, Jing'an District, Shanghai 20007  
P. R. China  
Phone +86 21 6107 0966

APAC@orioncarbons.com

#### Incorporated in Luxembourg

Orion Engineered Carbons S.A., 6, Route de Trèves, 2633 Senningerberg, Luxembourg, Phone +352 270 48 06 0

**[www.orioncarbons.com](http://www.orioncarbons.com)**

All statements given by Orion Engineered Carbons GmbH as well as its affiliates, including for example Orion Engineered Carbons S.A. ("Orion") herein are provided for information purposes only and are given as of the date of this document and are based on the knowledge on the date of the document. ORION DOES NOT GIVE ANY REPRESENTATION OR WARRANTY THAT THE CONTENTS OF THE GIVEN STATEMENTS AND INFORMATION ARE CORRECT OR ACCURATE. ANY LIABILITY OF ORION WITH REGARD TO THE CONTENTS PROVIDED ARE HEREBY EXPRESSLY EXCLUDED. Orion does not give a warranty with respect to any results to be obtained from such information, any uses of such information or with regard to the non-infringement of any proprietary right. Nothing stated herein shall be construed as a license of or recommendation for use, especially with concern to the potential infringement of any proprietary right. Use or application of such information or statements or the material or systems described herein are at user's sole discretion and risk. The user acknowledges that Orion shall bear no responsibility or liability for any use or application of such information or statements or the material or systems described herein. All sales are subject to the respective standard terms and conditions of Sale issued by Orion including but not limited to the limitation of liability contained therein. The Orion standard terms and conditions of Sale can be reviewed, downloaded and printed under [https://orioncarbons.com/en/general\\_conditions\\_of\\_sale\\_and\\_delivery\\_orion\\_engineered\\_carbons\\_europe\\_africa.pdf](https://orioncarbons.com/en/general_conditions_of_sale_and_delivery_orion_engineered_carbons_europe_africa.pdf). Any and all information disclosed by Orion herein shall remain the property of Orion.

© 2022 Orion Engineered Carbons GmbH

OEC-TD 0112-10/2022