

## 제조사별 주요 실리카와 카본블랙 grade 및 입자특성

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### ■ 제조사별 주요 Carbon Black grade 및 입자특성

상 품 명	EB 096	EB 095	EB 177	EB 154	HP 160	DIA UM	DIA S-A	DIA S-B	DIA S-C	DIA S-D	DIA S-E	DIA S-F	CRX 1391	CRX 1420	
ASTM															
제 조 사	KOSCO														
	Korea Carbon														
	CABOT												○	○	
	Degussa	○	○	○	○	○									
	TOKAI														
	Columbian														
	Mitsubishi						○	○	○	○	○	○			
입 자 특 성	12 (mg/g)	175	204	206	193	173	180	148	177	198	210	278	328	202	179
	DBP (ml/100g)	130	155	139	128	130	120	132	121	123	131	116	115	134	128
	CDBP	104	121	116	103	99	101	108	105	100	107	99	98	99	98
	N2SA	167	197	203	194	166	186	160	175	206	215	273	319		176
	CTAB	160	171	173	178	153	165	140	156	175	174	200	230	166	150
	STSA (ASTM)		167	176	177	155									
	TINT (%)		140	143	143	135	125	136	136	135	131	139	140	148	142
	TOLUENE														
	(425nm)						99	99	98	96	99	99	99		99
	(342nm)														
TEM	입자경 (nm)														

12 : Iodine adsorption no (ASTM D1510)  
 DBP Adsorption No (ASTM D2414)  
 CDBP No : Compressed sample (ASTM D3493)  
 N2SA : 질소흡착표면적 (ASTM D3037)  
 CTAB (ASTM D3765)  
 STSA : Statistical thickness Surface Area (SATM D5816)  
 Tint : tint strength (ASTM D3265)  
 TOLUENE : Toluene 착색 투과도 (ASTM D1618)

상 품 명	CRX 1483	CRX 1484	Ultra C975	HV 3396	N110	SAF	N134	N135	N103	N115	CD 2041	N120	N121	N125	
ASTM					SAF		○	○		○		○	○	○	
제 조 사	KOSCO								○				○		
	Korea Carbon														
	CABOT	○	○				Vulcan 10H			Vulcan 7H					
	Degussa						EB199 EB169							EB 172	
	TOKAI						Seast 9			Seast 9H					
	Columbian			○	○							○			
	Mitsubishi						DIA (A)								
입 자 특 성	12 (mg/g)	260	257	250	180	145	140	142	151	140	160	120	122	121	117
	DBP (ml/100g)	134	104	169	138	113	115	127	135	130	113	107	114	131	104
	CDBP	102	91		102	98	(98)	102	117		96	97	98	108	89
	N2SA	252	249			130	142	145	141	142	143	125	126	117	122
	CTAB						(122)					126		117	
	STSA (ASTM)	206	211			117		134			121		113		121
	TINT (%)			87	138	124	129	132	119	129	123	124	131	123	123
	TOLUENE														
	(425nm)						(99)								
	(342nm)														
TEM 입자경 (nm)						19			18						

상 품 명	CD 2038	CD 2005	CD 2013	CD 2014	CD 2015	CD 2019	N219	N220	N231	N234	EB 111	N285	N293	N299	
ASTM							ISAF /LS	ISAF	ISAF /LM	○		○	○	○	
제 조 사	KOSCO							○						○	
	Korea Carbon							○		○					
	CABOT														
	Degussa							EB 155		EB 171	○				
	TOKAI							Seast 600		Seast 7HM					
	Columbian	○	○	○	○	○	○								
	Mitsubishi	DIA (SA)							DIA 1		N234				
입 자 특 성	12 (mg/g)	133	117	70	74	82	380	111	122	121	119	110		145	109
	DBP (ml/100g)	173	173	176	180	179	112	75	115	92	124	111	129	100	122
	CDBP	123	130	114		133	95	106	96	86		96		92	103
	N2SA	127	106	72		87		109	117	111	116	115	96	130	109
	CTAB	(117)										109			119
	STSA (ASTM)									107				109	
	TINT (%)	116	113	91	98	101	145	117	109	117	120	103		120	121
	TOLUENE														
	(425nm)	(99)							80		80				
	(342nm)	75													
TEM 입자경 (nm)							23	22.5		25.2					

상 품 명	N326	N341	N330	N339	N343	DIA SH	N347	N351	N356	N358	N375	LH 303	N472	MAF /HS	MAF	
ASTM	HAF /LS	LJ HAF	HAF	○	○		HAF /HS	○	○	SPF	○	N335	XCF			
제 조 사	KOSCO	○	○	○							○					
	Korea Carbon			○	○							○				
	CABOT															
	Degussa	EB 174							EB 167							
	TOKAI	Seast 300	Seast N	Seast 3	Seast KH			Seast 3H	Seast NH					Seast 116HM	Seast 116	
	Columbian															
	Mitsubishi	DIA (LH)		DIA (H)	N339		○									
입 자 특 성	12 (mg/g)	82	70	82	90	92	80	89	68	92	81	90	69	270	58	53
	DBP (ml/100g)	72	101	102	122	103	128	123	120	154	150	114	135	128	158	133
	CDBP	69		88	99	104	99	97	97	112	112			114		
	N2SA	76	74	71	93	96	78	84	71	91	82	94	79		56	49
	CTAB						80	87				98				
	STSA (ASTM)					91			69	87	78					
	TINT (%)	108	102	102	107	114	95	106	100	115	99	110	92		73	60
	TOLUENE															
	(425nm)	80	90	80	80		91					80	40			
	(342nm)															
TEM 입자경 (nm)	30.3	29	28.6	24.6			27.7	29						38	38	

상 품 명	CRX 2000	CRX 2002	CRX 2006	FEF	FEF /HS	GPF	GPF-S	L605	SRF	SRF /VHS	N762	N774	N990	
ASTM				N550		N660							MT	
제 조 사	KOSCO			○		○	○		○					
	Korea Carbon			○		○	○		○					
	CABOT	○	○	○										
	Degussa				HS45					HS25	LS30		(MT)	
	TOKAI				Seast SO	Seast FM	Seast V		Seast S	Seast G-SVH				
	Columbian													
	Mitsubishi													
입 자 특 성	12 (mg/g)			43	35	35	35	28	28	30	29.4	29.4	(10)	
	DBP (ml/100g)	113	138	109	122	160	91	85	97	71	140	64.1	70	42
	CDBP	102	104	104			72	71	77			57	62	(36)
	N2SA	158	103	208		42	35	35		27	32			10
	CTAB													(8)
	STSA (ASTM)													
	TINT (%)				58	53	52	53	56	49	47	61.2	61	
	TOLUENE													
(425nm)				80		75	65	59	75					
(342nm)														
TEM 입자경 (nm)				42.2	50	62			66	62				

■ Silica grade별 입자특성

제조사			Rhodia						Degussa	
상품명			Z55 Gr	Z115 Gr	Z135 Gr	Z165 P	Z165 Gr	Z175 Gr	VN2 Gr	VN3 Gr
구분	항목	단위	R	HD	HD	HD	HD	R	R	R
Surface Area	CTAB	m <sup>2</sup> /g	153	109	165	154	154	154	122	161
	N2SA	m <sup>2</sup> /g	176	101	195	147	152	153	127	179
기타	H/L	%	6.2	6.1	5.0	6.4	6.6	6.2	5.6	6.7
	I/L	%	10.8	10.1	9.5	10.6	10.8	10.1	9.2	10.5
	pH	-	6.9	6.9	6.1	6.6	6.6	7.1	7.0	6.4
Structure	DBP	mℓ/100g	176	165	178	215	177	207	175	180
Size Distribution	Median	μm	10.8	0.4	6.6	3.8	8.2	9.2	2.9	7.5
	WK	-	12.4	0.5	4.9	3.2	10.4	13.3	1.6	6.1
	D50	μm	6.5	2.2	5.2	3.4	5.0	5.5	4.7	6.0
	Residue (> 18μm)	%	4.8	4.9	1.1	2.6	1.0	1.7	2.0	5.4
Silanol Density	Sears No.	mℓ/5g	24.7	19.8	26.1	18.9	18.7	21.9	21.3	23.2
Impurity	Na2SO4	%	2.2	1.4	0.3	1.7	1.5	2.2	0.8	1.6

H/L : 가열감량, I/L : 강열감량

Median : Peak value of size distribution curve

WK : ratio of peak 1 & 2 of size distribution curve

D50 : Width of 50% of peak height

Sears No. : Measure of silanol group density