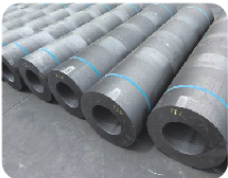


产品简介
Product introduction

石墨电极Graphite electrode

石墨电极包括普通功率、高功率和超高功率石墨电极，石墨电极是我公司研发的成熟电极产品，以其过硬的质量和完善的售后服务，赢得了国内外客户的好评。石墨电极主要用于冶金行业，有色金属和无色金属的冶炼，以及电石、磷化工企业，其中包括冶炼钢铁、工业硅、黄磷、铁合金、钛渣、棕刚玉等矿热炉冶炼生产。

Graphite electrodes include ordinary power, high power and ultra-high power graphite electrodes. Graphite electrodes are mature electrode products developed by our company. With its excellent quality and perfect after-sales service, they have won high praise from customers at home and abroad. Graphite electrodes are mainly used in metallurgical industry, non-ferrous and non-ferrous metals smelting, as well as calcium carbide and phosphorus chemical enterprises, including smelting iron and steel, industrial silicon, yellow phosphorus, ferroalloy, titanium slag, brown corundum and other submerged arc furnace smelting production.



石墨电极和接头理化指标
physical and chemical parameters of Graphite electrode and nipple

Table with 8 columns: Item, Unit, and Nominal Diameter (mm) for UHP, HP, and RP categories. Rows include Resistivity, Bending Strength, Young's modulus, Bulk Density, CTE, and Ash content.

注：表中的数据代表产品保证值和典型值，用户如有特殊要求另议
Note: The data in the table represent the guaranteed value and typical value of the product. If users have special requirements, they may discuss it separately.

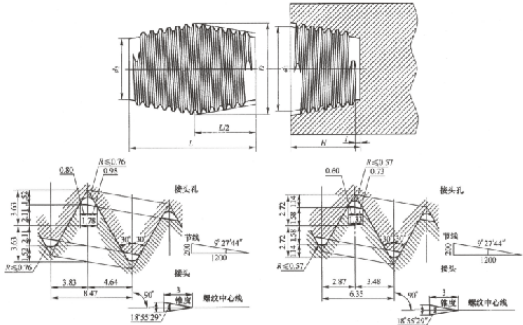
石墨电极允许电流负荷和电流密度
Permissible Current Load and Current Density of Graphite Electrode

Table with 7 columns: Diameter (mm/inch), Current Load (A), and Current Density (A/cm²) for UHP, HP, and RP categories. Rows list diameters from 75mm to 700mm.

石墨电极圆锥形接头尺寸 Dimensions of conical joints of graphite electrodes

电极直径 Electrode diameter			接头 Nipple				接头孔 Nipple socket		螺距 Pitch
			接头大径 D	接头小径 d2	接头长度 L	扣深偏差 I	接头孔中径 d1	接头孔深 H	
扣型 Nipple type	公制 mm	英制 inch	偏差 Deviation			≤	偏差 Deviation		
			(-0.5~0)	(-0.5~0)	(-1~0)		(0~0.5)	(0~7)	
3TPI	225	9"	139.70	90.73	203.20	10	131.27	107.60	8.47
	250	10"	155.57	103.80	220.00		147.14	116.00	
	300	12"	177.16	116.90	270.90		168.73	141.50	
	350	14"	215.90	150.00	304.80		207.47	158.40	
	400	16"	215.90	150.00	304.80		207.47	158.40	
	450	18	241.30	169.80	338.70		232.87	175.30	
	500	20	273.05	198.70	355.60		264.62	183.80	
	550	22	298.45	221.30	372.60		290.02	192.20	
3TPI L	600	24	336.55	245.73	457.20	7	338.07	234.60	6.35
	400	16	241.30	169.80	338.70		232.87	175.30	
	450	18	273.05	198.70	355.60		264.62	183.80	
4TPI	500	20	298.45	221.30	372.60	7	290.02	192.20	6.35
	75	3	46.04	20.08	76.02		39.72	41.10	
	100	4	69.85	40.30	101.60		63.53	56.80	
	130	5	79.38	45.60	127.00		73.06	69.50	
	150	6	92.08	56.20	139.70		85.76	75.90	
	175	7	108.00	80.43	165.10		101.68	87.50	
	200	8	122.24	80.00	177.80		115.92	94.90	
	225	9	139.70	97.46	177.80		133.38	94.90	
	250	10	152.40	108.00	190.50		146.08	101.30	
	300	12	177.80	129.20	215.90		171.48	114.00	
	350	14	203.20	148.20	254.00		196.88	133.00	
	400	16	222.25	158.80	304.80		215.93	158.40	
	450	18	241.30	177.90	304.80		234.98	158.40	
	500	20	269.88	198.00	355.60		263.56	183.80	
	550	22	298.45	226.58	355.60		292.13	183.80	
	600	24	317.5	245.63	355.60		311.18	183.80	
	650	26	355.60	266.79	457.20		349.28	234.60	
	700	28	374.65	285.84	457.20		368.33	234.60	
	750	30	406.40	296.42	584.20		400.08	298.10	
	4TPI L	800	32	431.80	313.36		635.00	7	
300		12	177.80	124.34	254.00	171.48	133.00		
350		14	203.20	141.27	304.80	196.88	158.40		
400		16	222.25	150.00	355.60	215.93	183.80		
450		18	241.30	169.42	355.60	234.98	183.80		
500		20	269.88	181.08	457.20	263.56	234.60		
550		22	298.45	209.65	457.20	292.13	234.60		
600		24	317.50	228.70	457.20	311.18	234.60		
650		26	355.60	246.86	558.80	349.28	285.40		
700		28	374.65	268.91	558.80	368.33	285.40		
750		30	406.40	292.19	609.60	400.08	310.80		
800	32"	431.80	304.89	685.80	425.48	348.90			

电极接头的形状、尺寸 Shape and Dimension of Electrode Joints



石墨电极外形尺寸 Shape size of graphite electrode

公称直径 Nominal dia		实际直径 Actual dia			公称长度及偏差 Nominal length and tolerance
公制 mm	英制 inch	最大 Max	最小 Min	厚度 Min Crust Dia	
75	3"	78	73	72	1000/1200/1400/1600±100
100	4"	108	100	97	1000/1200/1400/1600/1800/2000±100
130	5"	132	127	126	1000/1200/1400/1600/1800/2000±100
150	6"	154	149	146	1200/1400/1600/1800/2000±100
175	7"	179	174	171	1200/1400/1600/1800/2000±100
200	8"	205	200	197	1600/1800/2000±100
225	9"	230	225	222	1600/1800/2000±100
250	10"	256	251	248	1600/1800/2000±100
300	12"	307	302	299	1600/1800/2000/2200±100
350	14"	358	352	349	1600/1800/2000/2200±100
400	16"	409	403	400	1800/2000/2200/2400±100
450	18"	460	454	451	1800/2000/2200/2400±100
500	20"	511	505	502	1800/2000/2200/2400±100
550	22"	562	556	553	1800/2000/2200/2400±100, 2700±200
600	24"	613	607	604	1800/2000/2200/2400±100, 2700/3000±200
650	26"	663	659	656	1800/2000/2200/2400±100, 2700/3000±200
700	28"	714	710	707	1800/2000/2200/2400±100, 2700/3000±200
750	30"	765	761	758	1800/2000/2200/2400±100, 2700/3000±200
800	32"	816	812	809	1800/2000/2200/2400±100, 2700/3000±200

石墨电极圆锥形接头尺寸

Dimensions of conical joints of graphite electrodes

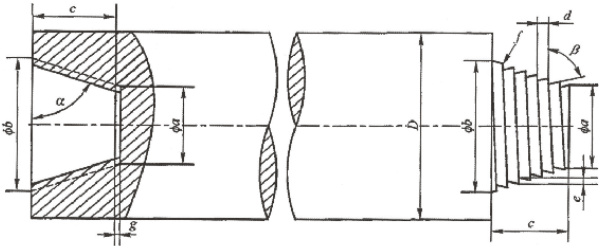
电极直径 Electrode diameter			接头 Nipple			扣深偏差 差I	螺距 Pitch
			接头大径 D	接头小径 d2	接头长度 L		
扣型 Nipple type	公制 mm	英制 inch	(-0.5~0)	(-0.5~0)	(-1~0)	≤	
4TPI	780	30.7"	394	318	457.2		6.35
4TPI	800	31.5"	394	318	457.2		
2TPI	850	33.5"	392.85	298.3	573.46		
2TPI	870	34.3"	392.85	298.3	573.46		
2TPI	900	35.4"	438.6	343	574		
2TPI	920	36.2"	492.5	367.8	647.5		
2TPI	960	37.8"	498.5	391.5	647.5		
2TPI	1020	40.2"	498.5	391.5	647.5		
2TPI	1060	41.7"	504.5	395.45	647.5		
2TPI	1146	45.1"	605	480	750		
2TPI	1272	50.1"	605	480	750		

注：尺寸为公司标准，可双方协商确定尺寸

Note: Size is the company standard. Size can be determined by negotiation between the two parties.

D mm	α	a mm	b mm	c mm	d mm	e mm	f mm	g mm	β
780,800	70°	317	550	320	48	27	4.2	15	75°
870,900	70°	346	600	349	48	25	4.2	15	75°
920,960	70°	381	640	356	48	25	4.2	15	75°
1020	70°	421	680	356	48	25	4.2	15	75°
1060,1100	70°	502	764	360	48	25	4.2	15	75°
1146,1197	70°	621	883	360	48	25	4.2	15	75°
1250,1272	70°	676	938	360	48	25	4.2	15	75°
1305,1321	70°	712	974	360	48	25	4.2	15	75°
1400	70°	771	1033	360	48	25	4.2	15	75°
780,800	55° 18'18"	305.3	651.4	250	40	32	5.9	50	58°
870,900	55° 18'18"	350.4	735.4	278	40	32	5.9	50	58°
920,960	55° 18'18"	400.4	785.4	278	40	32	5.9	50	58°
1020,1060	55° 18'18"	390.0	805.4	300	40	32	5.9	50	58°
1100,1146	55° 18'18"	436.1	865.4	310	40	32	5.9	50	58°
1197,1250,1272	55° 18'18"	489.6	960.4	340	40	32	5.9	50	58°
1305,1321,1400	55° 18'18"	627.0	1097.8	340	40	32	5.9	50	58°

接头尺寸表 Joint Dimension Table

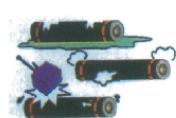


矿热炉专用电极外形尺寸

Profile size of special electrode for submerged arc furnace

公称直径 Nominal dia		实际直径 Actual dia			公称长度及公差 Nominal length and tolerance
公制 mm	英制 Inch	最大 Max	最小 Min	黑皮径 Min Crust Dia	
780	30.7"	782	778	774	2000/2200/2400± (100-200)
800	31.5"	802	798	794	2000/2200/2400± (100-200)
850	33.5"	852	848	842	2000/2200/2400± (100-200)
870	34.3"	872	868	862	2000/2200/2400± (100-200)
900	35.4"	902	898	892	2000/2200/2400± (100-200)
920	36.2"	922	918	912	2000/2200/2400± (100-200)
960	37.8"	962	958	952	2000/2200/2400/2600/2800± (100-200)
1020	40.2"	1022	1018	1012	2000/2200/2400/2600/2800± (100-200)
1060	41.7"	1062	1058	1052	2000/2200/2400/2600/2800± (100-200)
1100	43.3"	1102	1098	1092	2000/2200/2400/2600/2800± (100-200)
1146	45.1"	1148	1144	1138	2000/2200/2400/2600/2800± (100-200)
1197	47.1"	1199	1195	1189	2000/2200/2400/2600/2800± (100-200)
1205	47.4"	1207	1203	1200	2000/2200/2400/2600/2800± (100-200)
1250	49.2"	1252	1248	1242	2000/2200/2400/2600/2800± (100-200)
1272	50.1"	1274	1270	1264	2000/2200/2400/2600/2800± (100-200)
1305	51.4"	1307	1303	1297	2000/2200/2400/2600/2800± (100-200)
1321	52"	1323	1319	1313	2000/2200/2400/2600/2800± (100-200)
1400	55.1"	1402	1398	1392	2000/2200/2400/2600/2800± (100-200)

石墨电极使用指南 Guidelines for the Use of Graphite Electrodes



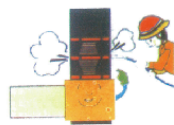
电极应贮存在清洁、干燥的地方，且避免震动和碰撞，使用前需经烘干。

The electrodes should be stored in a clean and dry place, and avoid vibration and collision. They should be dried before use.



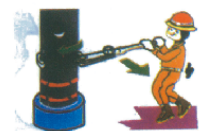
接装接头时，用压缩空气清洁孔部，然后接接头小心放入，不要损坏螺纹。

When connecting the joint, clean the hole with compressed air, and then screw in the joint carefully, so as not to damage the threads.



连接电极时，在两电极相距20~30mm时，用压缩空气清洁两电极端面。

When connecting the electrodes, when the distance between the two electrodes is 20~30 mm, the ends of the two electrodes are cleaned by compressed air.



使用板手连接电极时，应完全紧固到指定位置，使两电极连接间隙不大于0.05mm。

When using plate-hand to connect the electrodes, it should be fully tightened to the designated position so that the gap between the two electrodes is not more than 0.05 mm.



为避免电极折断，请避开绝缘料块。

To avoid electrode breakage, avoid insulating blocks.



为避免电极折断，请将大料块放置在下部，小料块装在上部。

In order to avoid the breakage of the electrode, please place the material block in the lower part and the small material block in the upper part.



煅烧石油焦 Calcined Petroleum Coke

煅烧石油焦是炼油厂中提取的延迟焦经煅烧而成。虽然煅烧石油焦相比沥青焦有较高的含硫量与含氮量，但价格上的优势也使之广泛用于炼钢、铸造材料当中作为增碳剂的一种。

Calcination of petroleum coke is the calcination of delayed coke extracted from refinery. Although calcined petroleum coke has higher sulfur and nitrogen content than asphalt coke, its price advantage also makes it widely used as a kind of carburizing agent in steelmaking and foundry materials.

理化指标 Physicochemical indices

型号代码 Mode Number	含碳 F.C	硫 S	灰分 Ash	挥发分 V.M	水 Moisture	氮 Nitrogen	真密度 True Density
	Min%			Max%			Min g/cm3
SH-CPC-98.5	98.5	0.5	0.50	0.50	0.50	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	0.7	0.50	0.50	0.50	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	1.5	0.50	0.80	0.50	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	2.0	0.50	0.80	0.50	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	3.0	0.50	0.80	0.50	0.30-0.80	2.04-2.08
SH-CPC-(97-98.5)	97-98.5	0.5-3.5	0.5-0.8	0.5-0.8	0.50	0.30-0.80	2.04-2.08
颗粒度 Size	1-3mm, 1-5mm, 0-1mm, 2-8mm, 0-25mm, 最少含量90%, 粒度可根据客户需求。(90%min or according to customers' requirements)						
包装 Packing	25公斤袋 In 25kgs bag; 25公斤袋装到1000公斤袋或900公斤袋, In 25kgs bag, then into 1000kgs or 900kgs big bag; 1000公斤袋 900公斤袋, In 1000kgs big bag; In 900kgs big bag;						



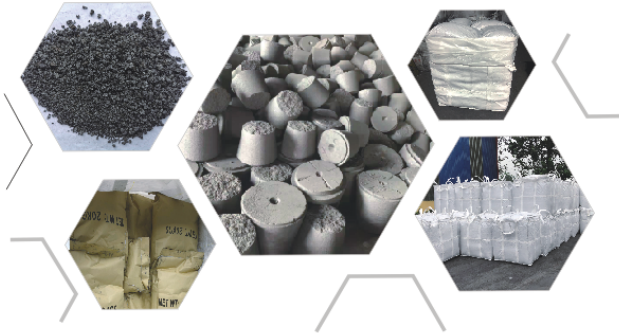
石墨增碳剂 Graphite carburizer

石墨碎Graphite scrap、石墨粉Graphite power、电极焙烧碎Baked scrap、石墨化石油焦GPC。
石墨增碳剂是指碳素产品通过高温或者其他方式使其的分子结构改变，有规则的排列，这种分子排列方式，碳的分子间距更宽，更利于在铁液或者铜液中分解。现在市场上的石墨增碳剂一般说来来自两种途径，一种是石墨电极的废料切割，再一个就是石油焦3000度的石墨化产品。

Graphite scrap, graphite powder Graphite power, electrode roasting Baked scrap, graphitized petroleum coke GPC.
Graphite carburizer refers to the regular arrangement of the molecular structure of carbon products by high temperature or other means. This arrangement of the molecule makes the molecular spacing of carbon wider, which is more conducive to decomposition in molten iron or steel. At present, the graphite carburizers on the market generally come from two ways, one is the waste cutting of graphite electrodes, the other is the graphitization products of petroleum coke 3000 degrees.

理化指示 Physical and Chemical Indicators

型号代码 Mode Number	含碳 F.C	硫 S	灰分 Ash	挥发分 V.M	水 Moisture	氮 Nitrogen	粒度 Size
	Min%	Max%					(Min90) %mm
石墨粉SH-GP-98.5	98.5	0.05	0.50	0.50	0.50	100-300	1-3
石墨粉SH-GP-98.5	98.5	0.05	0.50	0.50	0.50	100-300	1-5
石墨粉 SH-GP-98.5	98.5	0.05	0.80	0.50	0.50	100-300	0-2
石墨碎SH-GS-98.5	98.5	0.05	0.50	0.50	0.50	100-300	>100
电极焙烧碎SH-ERS-98.5	97-98.5	0.50	0.50	0.80-1	0.50	3000-8000	100-250/100-350
石墨化石油焦SH-GPC-98.5	98.5	0.05	0.50-1	0.50	0.50	100-300	1-5
石墨化石油焦SH-GPC-98.5	98	0.25	0.50-1	0.80-1	0.50	100-500	1-5
颗粒度 Size	1-3mm,1-5mm,0-1mm,2-8mm,0-25mm,100-250mm,100-350mm,最少含量90%，粒度可根据客户需求。(90%min or according to customers' requirements)						
包装 Packing	· 25公斤袋 In 25kgs bag; · 25公斤袋装到1000公斤袋或900公斤袋, In 25kgs bag, then into 1000kgs or 900kgs big bag; · 1000公斤袋 900公斤袋, In 1000kgs big bag; In 900kgs big bag;						



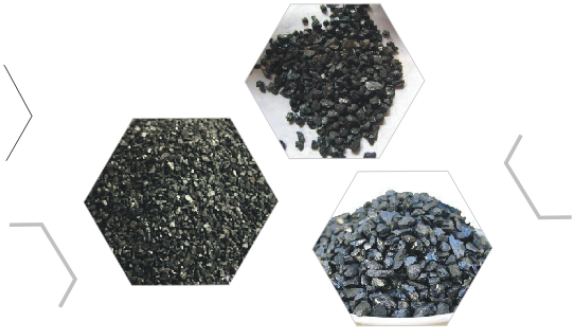
煤质增碳剂 Coal Carbonizer

煤增碳剂主要是从宁夏水洗煤煅烧而来。煤增碳剂的含碳量较低，一般不超过95%，但较低的价格也使它广泛用于炼钢行业。

Coal carburant is mainly obtained from the calcination of Ningxia water-washed coal. The carbon content of coal carburant is not more than 95% than that of paper, but the lower price makes it widely used in steelmaking industry.

理化指示 physical and chemical parameters

型号代码 Mode Number	含碳 F.C	硫 S	灰分 Ash	挥发分 V.M	水 Moisture	氮 Nitrogen	粒度 Size mm
	Min %	Max %					Min90%
煤增SH-CC-80	80	0.35	18	1.5	0.50	0.3	1-3
煤增SH-CC-85	85	0.35	13	1.5	0.50	0.3	1-3
煤增SH-CC-90	90	0.35	8.5	1.0	0.50	0.3	1-5
煤增SH-CC-91	91	0.30	7.5	1.0	0.50	0.3	1-5
煤增SH-CC-92	92	0.30	6.5	1.0	0.50	0.3	1-5
煤增SH-CC-93	93	0.30	5.5	1.0	0.50	0.3	1-5
煤增SH-CC-94	94	0.30	4.5	1.0	0.50	0.3	1-5
煤增SH-CC-95	95	0.30	3.5	1.0	0.50	0.3	1-5
电煤增SH-ECC	灰分(Ash) < 6%,比电阻(resistivity) < 600 μΩ·m,真密度(True Density) 1.82g/cm ³ ,硫(s) < 0.25%,挥发份(V.M) < 1%,水份(Moisture) < 0.5%。粒度: 1-16mm/1-20mm(min90%)						
颗粒度 Size	1-3mm,1-5mm,0-1mm,2-8mm,0-25mm,最少含量90%，粒度可根据客户需求。(90%min or according to customers' requirements)						
包装 Packing	· 25公斤袋 In 25kgs bag; · 25公斤袋装到1000公斤袋或900公斤袋, In 25kgs bag, then into 1000kgs or 900kgs big bag; · 1000公斤袋 900公斤袋, In 1000kgs big bag; In 900kgs big bag;						



焦炭 coke

焦炭是由煤在约1000℃的高温条下经干馏而获得。所含挥发分和硫分均甚少。按用途不同，有冶金焦炭、铸造用焦和化工用焦三大类。主要用于冶炼钢铁或其他金属，亦可用作制造煤气、气化和化学工业等的原料。

Coke is obtained by dry distillation of coal under a high temperature strip at about 1000 C. The volatile and sulfur contents are very little. According to different uses, there are metallurgical coke, foundry coke and chemical coke. It is mainly used for smelting iron and steel or other metals. It can also be used as raw materials for gas, gasification and chemical industry.

项目 Item	铸造焦炭 Foundry coke		冶金焦炭 Metallurgical coke	
	一级 First grade	二级 Second grade	一级 First grade	二级 Second grade
灰分 Ash(max)	10%	12%	12.5%	13%
挥发分 V.M(max)	1.5%	1.5%	1.5%	1.5%
含碳F.C(min)	88%	86%	86%	85%
硫 Sulfur(max)	0.6%	0.6%	0.7%	0.7%
水分 Moisture(max)	5%	5%	7%	7%
粒度 (Size90%)	80-120mm,120-300mm, 25-80mm, 或根据客户要求。 or as your requirement.			
包装 Packing	· 散装至集装箱内 in bulk or loose inside container; · 25公斤袋装到1000公斤袋或900公斤袋，In 25kgs bag, then into 1000kgs or 900kgs big bag; · 1000公斤袋 900公斤袋，In 1000kgs big bag; In 900kgs big bag;			



石油焦 PETroleum coke

石油焦（PETroleum coke）是原油经蒸馏将轻重质油分离后，重质油再经热裂的过程，转化而成的产品，石油焦分为低硫石油焦，中硫石油焦和高硫石油焦，石油焦用于制石墨、冶炼和化工等工业。

Petroleum coke (PETroleum coke) is a product of crude oil which is separated from light and heavy oil by distillation and then converted into heavy oil by thermal cracking. Petroleum coke is divided into low-sulfur petroleum coke, medium-sulfur petroleum coke and high-sulfur petroleum coke. Petroleum coke is used in graphite, smelting and chemical industries.

石油焦理化指标 physical and chemical parameters of PETroleum coke

项目 Content	质量指标 Quality index									
	1#	2#		3#		4#		5#	6#	
		A	B	A	B	A	B			
硫含量 Sulfur （ % ）	≤0.5	≤1.0	≤1.5	≤2.0	≤3.0	≤5.0	≤7.0	≤9.0	≤12	
挥发分 Volatile （ % ）	≤12	≤12	≤12	≤14	≤14	≤14	≤16	≤18	≤18	
灰分 Ash { % }	≤0.3	≤0.4	≤0.5	≤0.6	≤0.6	≤0.8	≤1.0	≤1.0	≤1.0	
粉焦量 Powder of coke （ % ）	≤35	报告 Report								
总水分b Moisture （ % ）	报告 Report									
真密度 True density (1300℃.5h) g/cm³	≥2.04-2.12									
硅Si （ ppm ）	≤300	报告 Report								
钒 V （ ppm ）	≤150	报告 Report								
铁 Fe （ ppm ）	≤250	报告 Report								
钙 Ca （ ppm ）	≤200	报告 Report								
镍 Ni （ ppm ）	≤150	报告 Report								
钠 Na （ ppm ）	≤100	报告 Report								
氮 N （ ppm ）	报告 Report									

油系针状焦理化指标 physical and chemical parameters of Oil needle coke

项目 Content	质量指标 Quality index		
	1#	2#	3#
硫含量 Sulfur (%)	≤0.5	≤0.5	≤0.5
挥发分 Volatile (%)	≤6	≤8	≤10
灰分 Ash (%)	≤0.3	≤0.3	≤0.3
总水分 b Moisture (%)	≤8	≤8	≤8
真密度 True density (煅烧 1300℃.5h) g/cm ³	≥2.12	≥2.11	≥2.10
热膨胀系数 CTE (100-600℃) 10 ⁻⁶ ℃/	≤1.5	≤2.0	≤2.5
粉焦量 (%)	≤35	报告 Report	报告 Report
硅Si (ppm)	≤300	报告 Report	
钒 V (ppm)	≤80	报告 Report	
铁 Fe (ppm)	≤250	报告 Report	
钙 Ca (ppm)	≤100	报告 Report	
镍 Ni (ppm)	≤150	报告 Report	
钠 Na (ppm)	≤100	报告 Report	
氮 N (ppm)	≤0.5	报告 Report	