

C公司简介 Company profile

青岛富雷克石墨新材料有限公司是专业从事石墨生产加工的企业，位于天然鳞片石墨的主产区--青岛平度市，公司拥有员工68人，其中技术人员12人，占地70亩，建筑面积50000多平米，年生产各类石墨30000吨以上。

公司主要产品有高、中、低碳石墨，高纯石墨、微粉石墨、石墨乳、可膨胀石墨、无硫可膨胀石墨、球形石墨、柔性石墨卷材等八大系列500多个品种。产品远销美国、德国、俄罗斯、西班牙、韩国、日本、印度、台湾等几十个国家和地区。

随着行业的发展和企业发展的需要，近年来我们开始逐步开拓中国国内市场，凭借我们在行业内良好的信誉以及对产品质量的严格把控，将国外客商优良的产品理念应用在对国内客户的服务上，使客户拥有了良好的合作体验，达到了预期的效果，建立了友好的合作联动机制。

我们的宗旨是严把质量关，持续改进，为了客户的信任和满意我们将不断提高产品质量和服务水平。我们期待能与更多的石墨用户达成合作，我们本着“产品质量第一，用户至上”的经营理念，与广大用户互惠互利，共同成长！

Qingdao Freyr Graphite Co., Ltd. is a professional enterprise engaging in the production and processing of graphite. It is located in Pingdu City, Qingdao, which is the main producing area of natural flake graphite. The company has 68 employees, including 12 professional technicians and covers an area of 70 acres with more than 50,000 square meters building area. The annual production of various types of graphite is more than 30,000 tons.

The company's main products extend to 8 series, 500 varieties covering high/medium/low carbon graphite, high purity graphite, micro powder graphite, graphite emulsion, expandable graphite, sulfur-free expandable graphite, spherical graphite, flexible graphite coil etc. Products are exported to the United States, Germany, Russia, Spain, South Korea, Japan, India, Taiwan and other countries and regions.

With the development of the industry and the needs of enterprise development, in recent years, we have gradually developed the domestic market in China. With our good reputation in the industry and strict control over product quality, we have applied the excellent product concept of foreign merchants to domestic customers. The service has enabled the customer to have a good cooperation experience, achieved the expected results, and established a friendly cooperation linkage mechanism.

Our aim is to strengthen quality control and continuous improvement. For the purpose of customers' trust and satisfaction, we will continue to improve product quality and service level. Sticking to the "Quality first, customer supreme" business philosophy, we look forward to working with more graphite users to achieve cooperation over mutual benefit and common growth!

未来石墨发展趋势：

未来石墨需求在传统应用领域将保持稳定。而在高精尖领域将得到越来越广泛的应用，成为战略性新兴材料。石墨的市场需求将会持续增加，战略意义越发凸显。未来在锂离子电池、密封材料、制动材料、尤其是石墨烯的开发与应用，将促使石墨在新能源、新材料领域具有更广阔的市场前景。顺应潮流需具有危机意识和战略意识，调整产品结构，发展高附加值产品，使石墨产业链后向一体化发展，提升石墨产业的竞争力。

Future Trend of the Development of Graphite

Future graphite demand will remain stable in traditional application areas. In the high-tech field, it will be more and more widely used as a strategic emerging material. The market demand for graphite will continue to increase, and the strategic significance will become more prominent. In the future, the development and application of lithium-ion batteries, sealing materials, brake materials, and especially graphene will promote graphite's broader market prospects in new energy and new materials. To comply with the trend, we need to have crisis awareness and strategic awareness, adjust product structure, develop high value-added products, and develop the backward integration of the graphite industry chain to enhance the competitiveness of the graphite industry.

公司使命与愿景： Company Mission and Vision

使命 Mission

我们专注于石墨新材料的开发及应用，在不断追求企业发展的同时，我们持续关注职业健康、质量保证以及可持续发展。我们非常重视企业的社会责任，严谨履行应有的责任。

We focus on the development and application of new graphite materials. While continuously pursuing corporate development, we continue to focus on occupational health, quality assurance and sustainable development. We attach great importance to corporate social responsibility and rigorously perform our due responsibilities.

愿景 Vision

诚信经营
精诚合作

Integrity management
Sincere cooperation

服务至上
共创共赢

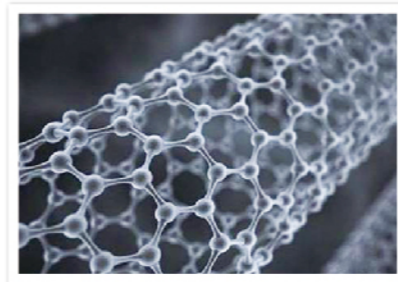
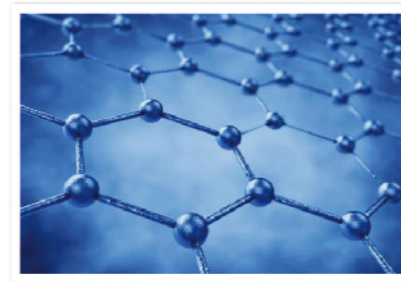
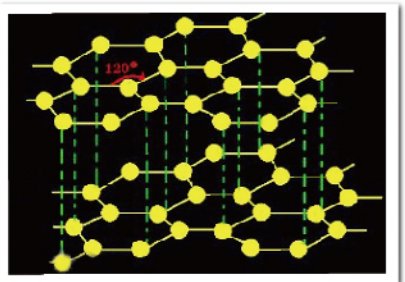
Service-oriented
To create a win-win situation

石墨简介

Introduction of Graphite

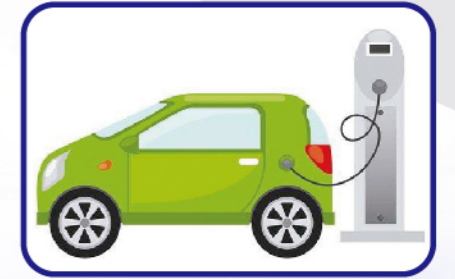
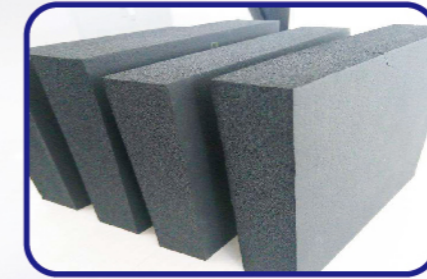
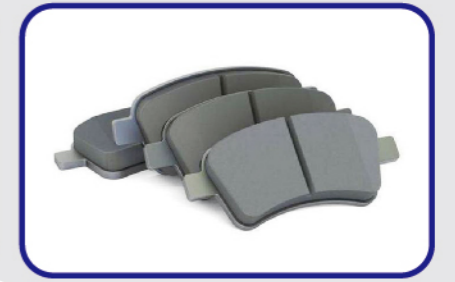
★ 石墨是元素碳的一种同素异形体，碳是一种非金属元素，石墨是碳质元素结晶矿物，它的结晶格架为六边形层状结构，石墨由于其特殊结构，而具有：耐高温性、导电、导热性、润滑性、可塑性、抗热震性、耐腐蚀等特殊性质。

Graphite is an allotrope of elemental carbon, which is a non-metallic element. Graphite is a crystalline mineral of carbonaceous material, and its crystal lattice is a hexagonal layered structure. Because of its special structure, graphite has special properties such as high temperature resistance, electrical conductivity, thermal conductivity, lubricity, plasticity, thermal shock resistance and corrosion resistance.



★ 正因为石墨所具有的特殊属性，已被广泛的应用于耐火材料、铸造涂料、摩擦密封材料、电池工业、石墨烯等领域。我们相信随着工业的发展和科技的进步，石墨市场将更加巨大，应用范围将更加广阔。

Because of the special properties of graphite, it has been widely used in refractory materials, foundry coatings, friction sealing materials, battery industry, graphene and other fields. We believe that with the development of industry and the advancement of technology, the graphite market will be even larger and the scope of application will be broader.



• 微粉石墨 Micro-Powder Graphite



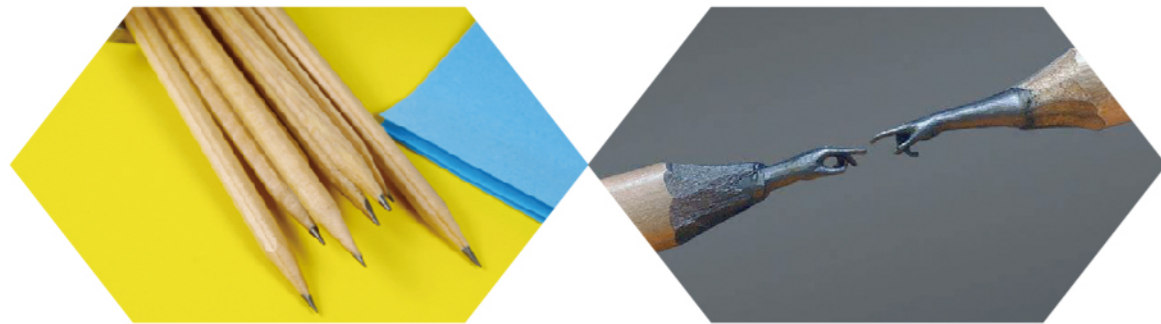
具有优质天然鳞片石墨的性能，在高温条件下具有特殊的抗氧化性、自润滑性和可塑性，同时具有良好的导电、电热和附着性。用作化肥工业催化剂生产中的脱膜润滑剂，耐高温润滑剂基料，耐腐蚀润滑剂基料粉末冶金脱膜剂及合金成分填充剂，橡胶，塑料和各种复合材料填充剂或性能改进剂。

Micro-powder graphite has the properties of high-quality natural flake graphite, which has special oxidation resistance, self-lubricity and plasticity under high temperature conditions, and has good electrical conductivity, electric heat and adhesion. Used as a release lubricant in the production of catalysts for the fertilizer industry, a high-temperature lubricant base, a corrosion-resistant lubricant base powder metallurgy release agent and alloy composition filler, rubber, plastic and various composite fillers or performance improvement Agent.

• 铅笔芯专业石墨 Graphite for Pencil Lead

铅笔芯以石墨为主要原料的铅笔，铅芯主要由粘土、颜料、滑石粉、胶粘剂、油脂和蜡等组成。是一种用来书写以及绘画素描专用的笔类，石墨铅芯的硬度标志，一般用“H”表示硬质铅笔，B表示软质铅笔，HB表示软硬适中的铅笔，F表示硬度在HB和H之间的铅笔。

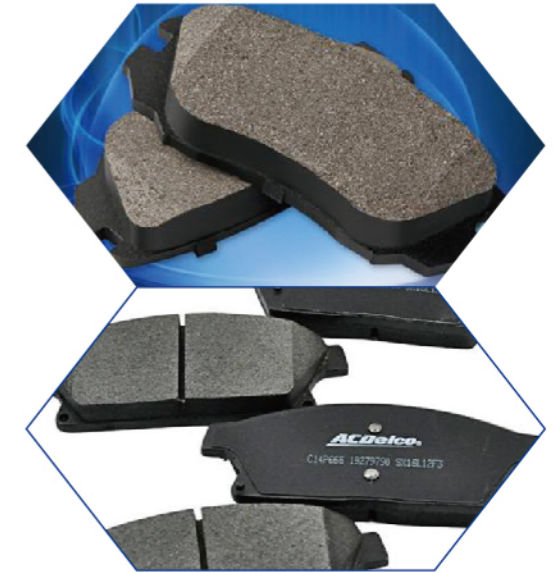
The pencil lead is made of graphite as the main raw material. The lead core is mainly composed of clay, pigment, talcum powder, adhesive, grease and wax. It is a pen type for writing and drawing sketches. The hardness of graphite lead core is generally indicated by "H" for hard pencil, B for soft pencil, HB for soft and hard pencil, and F for hardness between HB and H pencil.



• 摩擦材料专用石墨 Graphite for Friction Material

普通的刹车皮都是半金属和少金属材料造成，这些材料造成的刹车皮耐高温能力比较低，易生锈，基材比较硬，容易破损刹车盘产生异响，舒适性差等现象。石墨刹车片其主要特点有制动力强，耐高温，热稳定性好，对偶磨损小，性能大大优于普通刹车片。现已被一些国外的高档车采用。

Ordinary brake pads are caused by semi-metal and less metal materials. The brake pads caused by these materials have low temperature resistance, easy rust, hard substrates, easy to break the brake disc, and poor comfort. The main features of the brake pad with graphite are strong braking force, high temperature resistance, good thermal stability, small dual wear and performance, and the performance is much better than ordinary brake pads. It has been adopted by some foreign high-end cars.



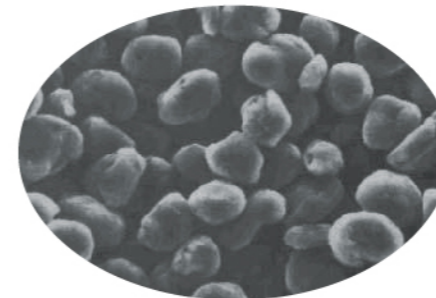
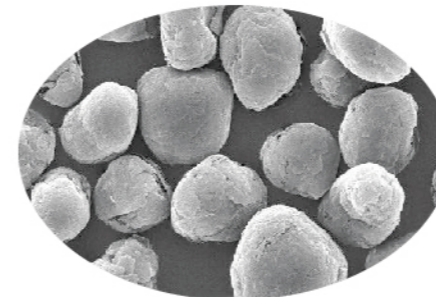
• 球形石墨 Spherical Graphite

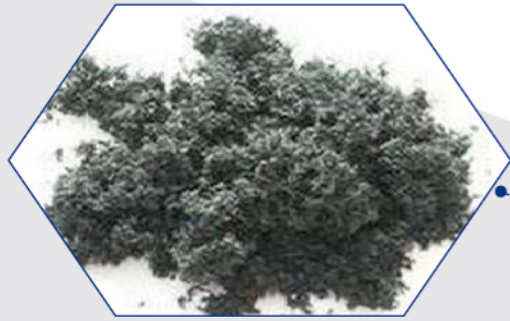
以鳞片石墨为原料，采用独特的整形及分级技术，能使产品粒度区间变窄、分筛集中，并采用先进的筛分与混合技术控制产品中异物，确保产品的稳定性、均一性、一致性。球形石墨是锂离子电池负极材料的主要原料。

产品性能：振实密度高，表面圆润、球形度好、接近于土豆形。质量稳定，粒度分布窄，SSA=2.4-2.8。

Using flake graphite as raw material, taking unique shaping and grading technology, the product size range can be narrowed and the pages can be concentrated. Advanced screening and mixing technology can be used to control the foreign matter in the product to ensure the stability, uniformity and consistency of the product. Spherical graphite is the main raw material for lithium ion battery anode materials.

Product performance: high tap density, round surface, good sphericity, close to potato shape. The quality is stable and the particle size distribution is narrow, SSA=2.4-2.8.





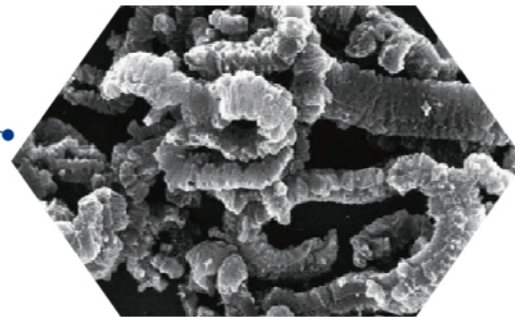
• 可膨胀石墨 Expandable Graphite

可膨胀石墨（酸化石墨），由天然晶质鳞片石墨，经酸性氧化剂处理后得到的一种石墨层间化合物，亦称为石墨酸、酸化石墨、氧化石墨。

膨胀石墨主要用于生产柔性石墨板材，具有含硫量低、抗拉强度高、体密均匀、板材表面光洁程度高、产品质量稳定等特点，低温膨胀石墨具有低温膨胀倍数高、膨胀力度大、产品质量稳定等特点。主要应用于生产各类阻燃料。

Expandable graphite (acidified graphite), a graphite intercalation compound obtained from natural crystalline flake graphite treated with an acidic oxidizing agent, also known as graphitic acid, acidified graphite, or graphite oxide.

Expanded graphite is mainly used in the production of flexible graphite sheets. It has the characteristics of low sulfur content, high tensile strength, uniform body density, high surface smoothness and stable product quality. Low temperature expanded graphite has high expansion ratio and high expansion strength. Product quality is stable and so on. Mainly used in the production of various flame retardant materials.



• 石墨乳 Graphite Emulsion

石墨乳主要分为：锻造石墨乳、拉斯石墨乳、水基石墨乳

性能：锻造石墨乳具有理想的高温润滑性、附着性、脱模容易、化学性质稳定、无腐蚀、无毒害、提高成型质量、明显延长模具寿命等特点。

用途：锻造石墨乳是黑色，有色金属热加工中理想的高温脱膜润滑剂，在锻造、金属模压加工等行业，广泛应用。

Graphite emulsion is mainly divided into: forging graphite emulsion, drawing graphite emulsion, and water-based graphite emulsion

Performance: Forging graphite emulsion has the characteristics of high temperature lubricity, adhesion, easy demoulding, stable chemical properties, no corrosion, no toxicity, improved molding quality, and obviously extended the using time of the mold.

Uses: Forging graphite emulsion is an ideal high-temperature release lubricant for black and non-ferrous metal hot processing. It is widely used in forging and metal molding processing industries.



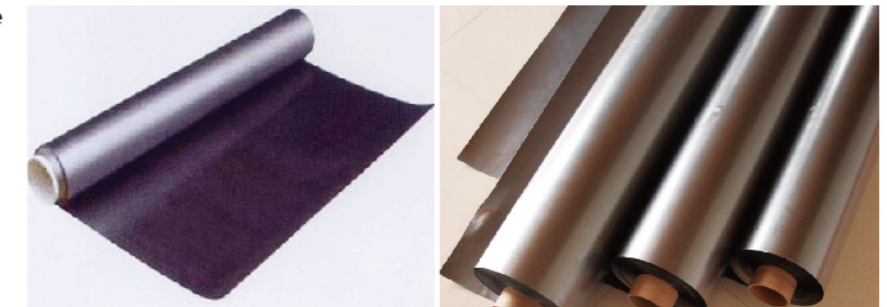
• 石墨板材、卷材 Graphite Sheet, Coil

用高碳鳞片石墨经化学处理高温膨胀轧制而成，具有耐高温、耐腐蚀、富于弹性等特点。

同时，以此为原料我公司生产石墨增强复合板、金属缠绕垫片、柔性石墨填料环、柔性石墨增强复合垫片。

Graphite sheet, roll are made of high-carbon flake graphite by chemical treatment at high temperature and is characterized by high temperature resistance, corrosion resistance and elasticity.

At the same time, using them as material, our company produces graphite reinforced composite board, metal wound gasket, flexible graphite packing ring and flexible graphite reinforced composite gasket.



天然鱗片石墨 Natural Flake Graphite

型号 Item Number	固定碳 Fixed Carbon (≅%)	挥发份 Volatility (≅%)	灰份 Ash (≅%)	水份 Moisture (≅%)	筛余物 Remains on Sieve (%)
LZ50-80 LZ80-80 LZ100-80 LZ120-80 LZ150-80 LZ(-)100-80 LZ(-)200-80 LZ(-)325-80 LZ(-)500-80	80.00	2.70-3.00	17.00-17.30	1.00	≅80.00 ≅20.00
LZ50-83 LZ80-83 LZ100-83 LZ120-83 LZ150-83 LZ(-)100-83 LZ(-)200-83 LZ(-)325-83 LZ(-)500-83	83.00	2.60-3.00	14.00-14.40	1.00	≅80.00 ≅20.00
LZ50-85 LZ80-85 LZ100-85 LZ120-85 LZ150-85 LZ(-)100-85 LZ(-)200-85 LZ(-)325-85 LZ(-)500-85	85.00	2.30-2.50	12.50-12.70	1.00	≅80.00 ≅20.00
LZ50-86 LZ80-86 LZ100-86 LZ120-86 LZ150-86 LZ(-)100-86 LZ(-)200-86 LZ(-)325-86 LZ(-)500-86	86.00	2.30-2.50	11.50-11.70	1.00	≅80.00 ≅20.00
LZ50-87 LZ80-87 LZ100-87 LZ120-87 LZ150-87 LZ(-)100-87 LZ(-)200-87 LZ(-)325-87 LZ(-)500-87	87.00	2.20-2.50	10.50-10.80	1.00	≅80.00 ≅20.00
LZ50-88 LZ80-88 LZ100-88 LZ120-88 LZ150-88 LZ(-)100-88 LZ(-)200-88 LZ(-)325-88 LZ(-)500-88	88.00	1.80-2.00	10.00-10.20	1.00	≅80.00 ≅20.00
LZ50-89 LZ80-89 LZ100-89 LZ120-89 LZ150-89 LZ(-)100-89 LZ(-)200-89 LZ(-)325-89 LZ(-)500-89	89.00	1.80-2.00	9.00-9.20	1.00	≅80.00 ≅20.00
LZ50-90 LZ80-90 LZ100-90 LZ120-90 LZ150-90 LZ(-)100-90 LZ(-)200-90 LZ(-)325-90 LZ(-)500-90	90.00	1.80-2.00	9.00-9.20	1.00	≅80.00 ≅20.00
LZ50-91 LZ80-91 LZ100-91 LZ120-91 LZ150-91 LZ(-)100-91 LZ(-)200-91 LZ(-)325-91 LZ(-)500-91	91.00	1.40-1.60	7.40-7.60	1.00	≅80.00 ≅20.00
LZ50-92 LZ80-92 LZ100-92 LZ120-92 LZ150-92 LZ(-)100-92 LZ(-)200-92 LZ(-)325-92 LZ(-)500-92	92.00	1.35-1.55	6.45-6.65	1.00	≅80.00 ≅20.00
LZ50-93 LZ80-93 LZ100-93 LZ120-93 LZ150-93 LZ(-)100-93 LZ(-)200-93 LZ(-)325-93 LZ(-)500-93	93.00	1.30-1.50	5.50-5.70	1.00	≅80.00 ≅20.00
LZ50-94 LZ80-94 LZ100-94 LZ120-94 LZ150-94 LZ(-)100-94 LZ(-)200-94 LZ(-)325-94 LZ(-)500-94	94.00	1.00	5.00	0.50	≅80.00 ≅20.00
LZ50-95 LZ80-95 LZ100-95 LZ120-95 LZ150-95 LZ(-)100-95 LZ(-)200-95 LZ(-)325-95 LZ(-)500-95	95.00	1.00	4.00	0.50	≅80.00 ≅20.00
LZ50-96 LZ80-96 LZ100-96 LZ120-96 LZ150-96 LZ(-)100-96 LZ(-)200-96 LZ(-)325-96 LZ(-)500-96	96.00	0.90	3.10	0.50	≅80.00 ≅20.00
LZ50-97 LZ80-97 LZ100-97 LZ120-97 LZ150-97 LZ(-)100-97 LZ(-)200-97 LZ(-)325-97 LZ(-)500-97	97.00	0.80	2.20	0.50	≅80.00 ≅20.00
LZ50-98 LZ80-98 LZ100-98 LZ120-98 LZ150-98 LZ(-)100-98 LZ(-)200-98 LZ(-)325-98 LZ(-)500-98	98.00	0.70	1.30	0.50	≅80.00 ≅20.00
LZ50-99 LZ80-99 LZ100-99 LZ120-99 LZ150-99 LZ(-)100-99 LZ(-)200-99 LZ(-)325-99 LZ(-)500-99	99.00	0.35	0.65	0.50	≅80.00 ≅20.00

以上数据可根据用户要求调整 The above specifications could be adjusted by the customer's requirements

高纯天然石墨 High Purity Graphite

型号 Item Number	固定碳 Fixed Carbon (≅%)	粒度size(%)		水份 Moisture (≅%)	微量元素 (ppm)	
		筛上 Over Sieve (≅%)	筛下 Down Sieve (≅%)		铁Fe	钼Mo
LC50-999	99.9	80	-	0.2	铁Fe	60
LC(-)100-999		-	90		钼Mo	1
LC(-)200-999		-	85		铬Cr	8
LC(-)325-999		-	75 or 80		铜Cu	2
LC32-9999	99.99	80	-		镉Cd	1
LC50-9999		80	-		锑Sb	1
LC80-9999		80	-		铅Pb	5
LC(-)100-9999		-	80		砷As	0.5
LC(-)200-9999		-	80		-	-
LC(-)325-9999		-	75 or 80		-	-

微粉石墨 Micro-Powder Graphite

型号 Item Number	固定碳 Fixed Carbon (≅%)	灰份 Ash (≅%)	水份 Moisture (≅%)	粒度 Particle Size < (um) (目)	检测设备 Inspection Equipment
FS-5	-	1	0.5	5(3000目) 80%	WINNER-2000ZDe激光粒度分析仪
F-1	-	1.5		6(2100目) 60%	
F-2	-	2		10(1500目) 60%	
F-3	90	-		38(400目)90%	水筛 Wet Sieve
F-4	88	-			
F-5	-	5			
F-6	-	6			
F-7	-	5			
F-8	-	5			
F-9	-	0.7			

可膨胀石墨 Expandable Graphite

品种 Types	规格 Specification	膨胀倍数 Expansion Rate (ml/g)	PH值 PH Value	挥发份 Volatile (%)	水份 Moisture (%)	固定碳 Fixed Carbon (%)	粒度 Particle size (%)		硫含量 Sulphur Content (%)	膨胀温度 Temperature
							筛上物 Screen oversize	筛下物 Screen undersize		
普通可膨胀石墨 Normal expandable graphite	32目	200-400	3-7	≅15.00	≅1.00	85.00-99.50	≅80.0	≅2.50	≅950℃	
	50目	200-350								
	80目	150-250								
	100目	100-200								
超细可膨胀石墨 Ultrafine expandable graphite	-100目	30-60	3-7	≅10.00	≅1.00	85.00-99.00	≅80.0	≅2.50	≅950℃	
	-200目	20-50								
	-325目	10-20								
超低硫可膨胀石墨 Ultralow sulphur expandable graphite	32目	200-400	3-7	≅12.00	≅1.00	90.00-99.50	≅80.0	≅0.02	≅950℃	
	50目	200-350								
	80目	150-250								
	100目	100-200								
高纯可膨胀石墨 High purity expandable graphite	32目	200-400	3-7	≅15.00	≅1.00	≅99.80	≅80.0	≅2.50	≅950℃	
	50目	200-350								
	80目	150-250								

以上数据可根据用户要求调整 The above specifications could be adjusted by the customer's requirements