电容型石墨烯

产品说明

专注研发，只为更高品质

一、产品概述

1. 昂星新碳开发的电容型石墨烯（Capacitance Type Graphene）简称CTG。本品呈絮状多孔纹理结构，具有比表面积大、无二次团聚、孔隙大等优点，作为电容活性材料具有比电容值高、倍率性能好、循环寿命长等特点。

2. 本品电容值高，适合应用于电容材料领域；比表面积大，吸附效果好，适合应用于吸附材料领域；呈棉絮状，弹性较好，适合应用于粉末冶金领域。

二、产品参数

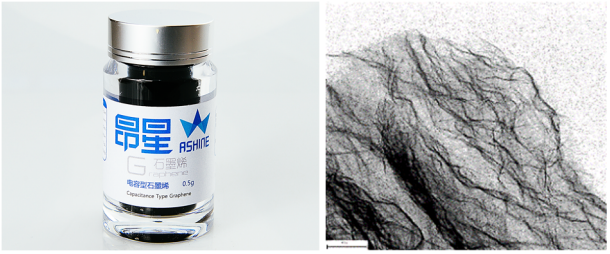


图1. 昂星CTG产品和TEM图谱

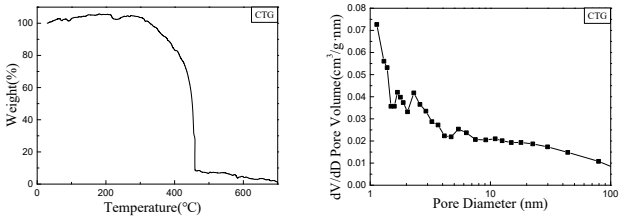


图2. 昂星CTG产品TGA分析和孔径分布分析

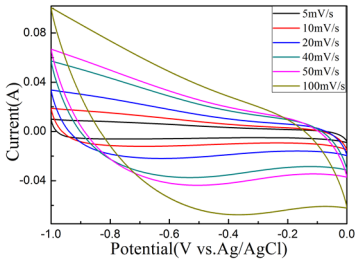
技术参数	参数值
形貌	黑色蓬松粉体
厚度（nm）	~4
单层片径（μm）	0.5~10
碳含量（wt.%）	~77
氧含量（wt.%）	~20
硫含量（wt.%）	＜1
比表面积（m^2/g）	~470
密度（g/L）	~7.7
电导率（S/m）	~300

三、产品电容性能测试

样品质量：5mg　　电解液：5M KOH体系

测试体系：三电极（产品处理后作为工作电极，Ag/AgCl作为参比电极，Pt丝电极作为对电极）

1. 循环伏安Cyclic Voltammetry (CV)



根据循环伏安曲线容量计算公式：$C_m = \frac{1}{S \times m \times \Delta V}\int_{V_0}^{V_0+\Delta V} idV$

以10mV/s的扫描速度为基础，对电极测试结果进行计算。结果表明，样品的容量可达193.2 F/g。

2. 恒电流充放电 Galvanostatic Charge–Discharge (GCD)测试结果

电流密度（A/g）	电容值（F/g）	容量保持率（%）
0.5	239.2	100
1	221.5	92.6
2	200.3	83.73
5	163.75	68.46
5（2000次）	154.3	64.4

四、注意事项

使用安全：本款石墨烯粉体易飘散，对人体的肺及呼吸道有害，使用过程中请做好相应的粉尘防护。

贮存运输：本品室温下密封保存（<30℃）。包装瓶为PS材质，请远离热源。请勿与有机溶剂接触。

本说明书为简要产品说明，具体产品说明请登录公司网站 ***www.ashinecarbon.com*** 查看及下载。

如果对上述内容存在任何疑问或需要相关文献，欢迎联系我们：***Sales@ashinecarbon.com***

Capacitance Type Graphene

Product Information

ASHINE

FOCUS ON R&D
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I. Product Overview

1. The Capacitance Type Graphene developed by Ashine is referred to as 'CTG' for short. This product has a flocculent porous texture and such advantages as a high specific surface area, no second aggregation, large pores, etc.. As an active capacitive material, it has such features as a high specific capacitance value, high performance rate and long cycle life.

2. The product has high capacitance, suitable for capacitive material; high specific surface area and good adsorption effect, suitable for absorbent material; flocculence and good elasticity, suitable for powder metallurgy.

II. Product Parameters

Technical Parameter	Parameter Value
Form	Black fluffy powder
Thickness (nm)	~4
Monolayer diameter (μm)	0.5~10
Carbon content (wt.%)	~77
Oxygen content (wt.%)	~20
Sulfur content (wt.%)	< 1
BET (m^2/g)	~470
Density (g/L)	~7.7
Electric conductivity(S/m)	~300

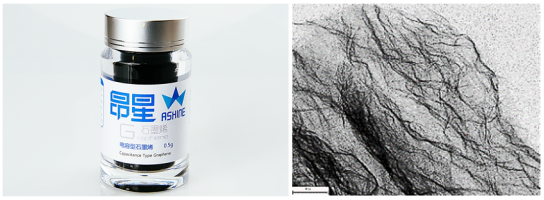


Fig. 1. Ashine CTG Product and TEM Images

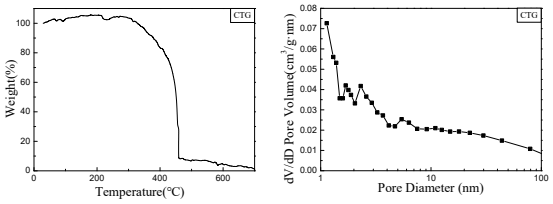


Fig. 2. Ashine CTG Product TGA Analysis and Pore Size Distribution Analysis

III. Capacitive Performance Test

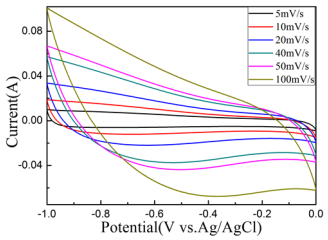
Sample quality: 5 mg Electrolyte: 5M KOH System

Test system: Three electrodes (the product is treated as the working electrode, Ag/AgCl as the reference electrode and the Pt wire electrode as the counter electrode)

1. Cyclic Voltammetry (CV)

According to the calculation formula of cyclic voltammetry curve capacity: $c_m = \frac{1}{S \times m \times \Delta V} \int_{V_0}^{V_0+\Delta V} idV$

The electrode test results are calculated under the condition of a scanning speed of 10 mV/s. The results show that the sample capacity is up to 193.2 F/g.



2. Galvanostatic Charge–Discharge (GCD) Test Results

Current Density (A/g)	Capacitance Value (F/g)	Capacity Retention (%)
0.5	239.2	100
1	221.5	92.6
2	200.3	83.73
5	163.75	68.46
5 (2,000 times)	154.3	64.4

V. Notice

Safe use: CTG is prone to floating and can be harmful to the lungs and respiratory tract. Please ensure appropriate dust protection when it is used.

Storage and transportation: This product is sealed at room temperature. The packing bottle is PS material. Please keep away from heat sources and any organic solvents.

This manual is a brief product description. Please visit the company's website at www.ashinecarbon.com to view and download a detailed product description.If you have any questions about the above or require the relevant literature, please contact us at Sales@ashinecarbon.com.