

Product Data Sheet



C3 Electrode

Carbon Film Based Electrode

Our C3 Electrode is made using a chemical vapor deposition (CVD) process that deposits a uniform, pristine carbon film directly onto an alumina substrate. This method creates a pure carbon interface that is binders and additive free, supports efficient electron transfer, and consistent electrochemical performance.

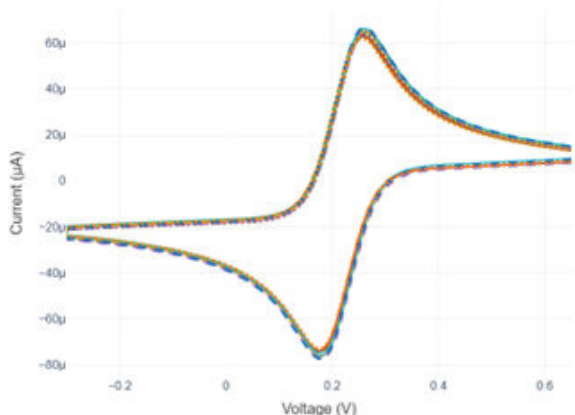
Our C3 Electrode shows reliable behavior with clear peak separations and robust current responses, making it a solid choice for high-frequency applications and biosensing. Overall, the C3 Electrode offers a strong platform for advanced electrochemical measurements and sensing applications, balancing innovative performance with practical reliability.

Growth Method	Chemical Vapor Deposition
Quality Control	Raman, SEM, and 4-Point Probe
Dimensions (mm)	10 x 30 x 0.5
Substrate Material	Alumina
Composition (EDS)	> 99% C (No Binders)
Carbon Thickness (μm)	2.3 ± 0.2
Sheet Resistance (ohms/sq)	5 ± 0.5
Surface Area*	0.46 ± 0.02
Conductivity (S/m)	2×10^5
Chemical Stability**	Binder free, high for most solvents
WE Geometric Area (mm^2)	12.56
Working and Counter Electrode	Pristine Carbon
Reference Electrode	Ag/AgCl

*Percentage of additional surface area, relative to the projected, planar area.

**C3 Electrode is compatible with many solvents, but the applied dielectric has more limited solvent stability. Contact us for solvent resistant C3 Electrode device options.

Figure 1. CV Curve



CV curves for 5 mM $K_3[Fe(NC)_6]$ / 1M KCl at a scan rate of 50 mV/s using C3 electrodes.

Table 1. Parameters extracted from CV curves of C3 electrodes (n = 30)

	Mean	RSD
I_{pa} (μA)	69.9 ± 1.9	2.7%
I_{pc} (μA)	-85.6 ± 2.7	3.1%
ΔE_p (mV)	85 ± 4.0	4.7%
E_0 (mV)	200 ± 1.0	0.5%

Figure 2. Raman Spectrum

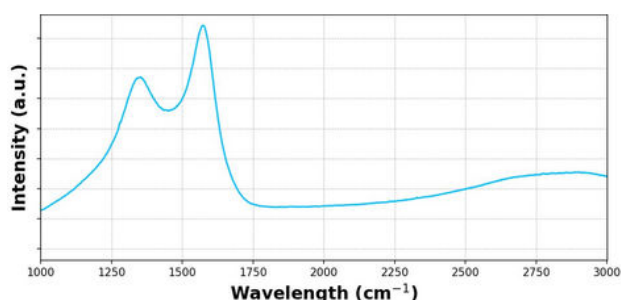


Figure 3. SEM Image

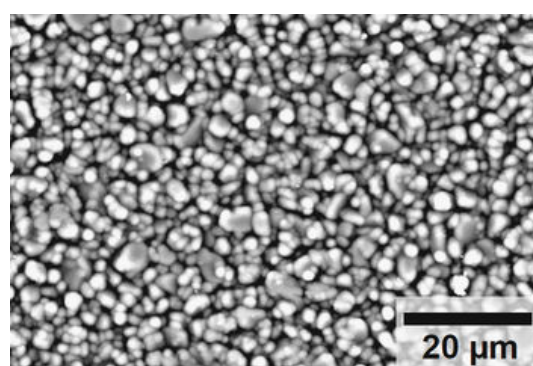
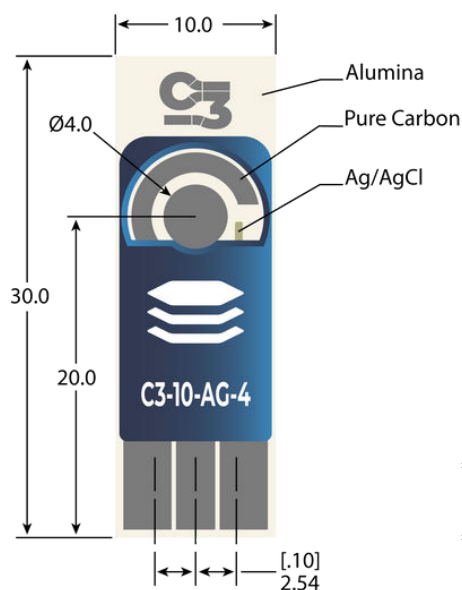


Figure 4. CAD Rendering



Handling Guide

- C3 electrodes are intended for single-use, disposable sensor applications.
- Store in a dry, room-temperature environment. Always keep the container closed and away from direct sunlight.
- Please avoid touching or contact with the carbon and/or Ag/AgCl surfaces. It is recommended that you handle them with tweezers.

*Electrodes defined from continuous film by tracing.

** Custom C3 Electrode Configuration available upon request.

Related Products

For more information about the products offered by General Graphene Corporation, please visit www.generalgraphenecorp.com or contact us at sales@generalgraphenecorp.com.