Glassy Carbon Information

Document LMEC004

Material Source Disclaimer

Standard glassy carbon electrodes available from Pine are fabricated using glassy carbon obtained from Tokai Carbon Company, Ltd in Japan. Glassy carbon is a difficult material to manufacture in a consistent manner, and Pine has found this source to be the most reliable over the years. Most of our electrodes are manufactured from glassy carbon rods of various dimensions which are available from Tokai Carbon (see link below):

http://www.tokaicarbon.co.jp/en/products/semicon05_02.shtml

When a glassy carbon rod is manufactured, the possibility always exists that the composition of the rod may not be entirely uniform over the entire length of the rod. There may be differences in the microstructure of the material, and there may be small void spaces within the rod. Thus, the surface characteristics and/or area of an electrode made from such a rod may change over time, as each polishing of the electrode surface reveals a new layer of material with potentially differing properties.

The voltammetric behavior of a glassy carbon electrode is also known to change depending upon the treatment received by the electrode surface prior to use. In general, most glassy carbon electrodes from Pine are shipped with a mirror polish finish achieved by using sub-micron alumina powder. (Some customers occasionally request a 600 grit sandpaper finish instead.) Given that there exists a wide body of literature and lore describing various procedures, rituals, and recipes for "activating" the surface of a glassy carbon electrode, the customer may wish to further prepare the surface of a glassy carbon electrode prior to use.

Pine recognizes that in some electrochemical applications, our customers may require more control over the material used to manufacture a glassy carbon electrode. In these situations, Pine is usually able to fabricate custom electrodes from material supplied by the customer. Contact Pine for further details.

In light of the discussion above, Pine makes no warranty, express or implied, regarding the surface characteristics, surface chemistry, or surface morphology of glassy carbon electrodes.