

September 2014

Highly Oriented Graphite Optical device for tayloring radiation



Distribution Partnership in Europe with





Panasonic offers homogeneous and massive single crystal graphite in a short lead-time

Graphite is a wonderful material endowed with superior physical properties such as strongly anisotropic heat conduction, light weight, superior elasticity, and radiation resistance. To optimize these extraordinary characteristics "**Panasonic Graphite**" was developed as a joint venture between the Japanese Science and Technology Agency and Panasonic Corporation aiming at improving graphite for applications in the fields of neutron and X-ray beam applications such as monochromatization of beams or as filters requiring the superior single crystalline-like properties of commercial "**Panasonic Graphite**".

Realizing the single crystalline-like morphology in graphite witnessed to be a difficult task when using existing conservative production methods such as powder metallurgical and fiber knitting processes. With the discovery of the solid vapor phase production method within the joint venture the technical difficulties were overcome and "**Panasonic Graphite**" became the world unique single crystalline-like graphite material in the form of HOPG (Highly Oriented Pyrolytic Graphite).

Panasonic Corporation is now supplying the new graphite material as "Panasonic Graphite" featuring:

- 1 homogeneous, massive material with single crystalline-like properties.
- 2 very short production lead time compared with other HOPG materials.
- ③ profile: flat, one- or two-dimensional.



Physical characteristics

electric conductivity(a - b (c - a	plane) 23000 S/cm xis) 5~6 S/cm
heat conductivity (a一b (c一a	plane) 1000 W/(mK) kis) 5 W/(mK)
heat resistance (inactiv	ve gas) >3000 °C
crystal layer interval ((00	2) plane) 0. 3354~0. 3356 nm
Young's modulus	750 GPa
sound velocity	18000 m/sec
apparent density	2.20~2.25 g/cm ³
coefficient of linear expansi	on(a—b plane) -1.0×10 ⁻⁶ /K (c—axis) 27×10 ⁻⁶ /K

Specification

Grade	Mosaic spread ($ heta$)°	Standard size (mm)
PGCX04	0. 40≦ <i>θ</i> <0. 50	12×12×1 ~ 50×50×6
PGCX05	0. 50≦ <i>θ</i> <0. 60	12×12×1 ~ 50×50×6
PGCX07	0. 60≦ <i>θ</i> <1. 00	12×12×1 ~ 70×70×10
PGCX10	1. 00≦ <i>θ</i> <2. 00	12×12×1 ~ 50×140×10
PGCX20	2. $00 \le \theta < 3. 00$	12×12×1 ~ 50×140×10

Grades and sizes (flat profile)

- * Mosaic spread (θ)⁰ measured using X-rays (CuK_{a1}).
- * Single and double bent graphite available (thickness 1 3 mm).
- * Customization in terms of size negotiable.

Contact

Europe: Prof. Dr. Peter Böni SwissNeutronics AG, Neutron Optical Comp Bruehlstrasse 28, CH-5313 Klingnau, Switze E-mail: tech@swissneutronics.ch	oonents and Instruments erland Phone: +49–89 289 14711	
Web: http://www.swissneutronics.ch/		
USA: Bob Galli Panasonic Industrial Devices Sales Company a division of Panasonic Corporation of Nor 2 Riverfront Plaza Newark, NJ 07102–5490 E-mail: Bob.Galli@us.panasonic.com	v of America, th America 0 U.S.A. Phone: +1−201.348 7522	
Other areas: Toshihiro Gotoh / Panasonic Corporation 2-7 Matsuba-cho, Kadoma City, Osaka 571-8502, Japan E-mail: gotoh.toshihiro@jp.panasonic.com Phone: +81-50-3487-1070		

Please note that the products of this catalogue may be changed or improved without notice. This catalogue is prepared as of September 2014

PG_Catalogue_140922_SNAG