Designation: C625 – 15

Standard Practice for
Reporting Irradiation Results on Graphite[1]

1. Scope*

1.1 This practice covers information recommended for inclusion in reports giving graphite irradiation results.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

E261 Practice for Determining Neutron Fluence, Fluence Rate, and Spectra by Radioactivation Techniques

E525 Practice for Reporting Dosimetry Results on Nuclear Graphite (Withdrawn 2001)[3]

3. Terminology

3.1 *Definitions:*

3.1.1 *grade, n*—designation given a material by a manufacturer such that it is always reproduced to the same specifications established by the manufacturer.

4. Significance and Use

4.1 The purpose of this practice is to identify sample and test parameters that may influence graphite irradiation test results. This practice should not be construed as a requirement or recommendation that proprietary information be disclosed.

4.2 Irradiation results on graphite include dimensional changes and changes in properties that are used in reactor design. The irradiation data are reported in government documents, open literature publications, and are assembled into data manuals for use by reactor designers.

5. Sample Description

5.1 Source,

5.2 Grade or identifying sample number,

5.3 Raw materials including filler, binder, additives, impregnants and their pretreatment, if not proprietary information,

5.4 Forming process including the size and shape of parent stock, if not proprietary information,

5.5 Heat treatment including graphitizing temperature, rate of heating and soak time, if not proprietary information.

5.6 Purification, if not proprietary information,

5.7 Sampling plan including location in parent stock, grain orientation, size, and shape of samples, and

5.8 Pre-irradiation sample treatment including prestressing, annealing, or previous irradiation.

6. Property Measurements

6.1 *Method*—Indicate the method and accuracy of measurement and, if applicable, differences between pre- and post-irradiation measurements. Where applicable, give reference to standards or guides that prescribe (or describe) the method used.

6.2 *Results*—Specify the number of samples represented or the number of measurements per sample if mean values are given.

6.3 Indicate other measurements taken but not reported.

7. Irradiation Conditions

7.1 Reactor and test positions.

7.2 Design of capsule, including materials of construction.

7.3 Atmosphere to which samples were exposed.

7.4 Thermal history including method of measurement or calculation.

7.5 *Sample Constraint*—If applicable, indicate the type, magnitude and method of determining stress applied during irradiation.

7.6 *Dosimetry*—Refer to Practices E261 and E525.

7.7 *Neutron Fluence*—Neutron spectrum and energy cut off utilized for neutron fluence calculation.

7.8 *Sample Recovery*—Report the methods of recovery and transfer, and the time between discharge and post-irradiation measurement of properties.

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*A Summary of Changes section appears at the end of this standard