

# Erratum: “Physical properties of Hastelloy® C-276™ at cryogenic temperatures” [J. Appl. Phys. 103, 064908 (2008)]

Cite as: J. Appl. Phys. 127, 039901 (2020); <https://doi.org/10.1063/1.5141940>

Submitted: 09 December 2019 . Accepted: 22 December 2019 . Published Online: 17 January 2020

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Figure 2 of our original paper<sup>1</sup> is the thermal expansion of Hastelloy® C-276 between 4.2 and 300 K measured by a variable temperature x-ray diffractometer. A flaw of that measurement was that no reference sample with known thermal expansion, e.g., pure copper, was measured. The variable temperature x-ray diffractometer was permanently out of operation soon after the publication of our paper.

We were not aware at the time that there is a published<sup>2,3</sup> low temperature thermal expansion of an alloy called Hastelloy® C that has a very similar chemical composition as Hastelloy® C-276. Reference 2 reported a thermal expansion of 0.194% between 10 K and 273 K, while our result between the same temperatures was  $0.297\% \pm 0.015\%$ . Recently, Radcliff *et al.*<sup>3</sup> measured the thermal expansion of a Hastelloy® C-276 rod from 4.2 K to 300 K using a quartz rod dilatometer similar to what was used in Ref. 2. Their data are consistent with Ref. 2 within the

measurement error. Apparently, Fig. 2 of our original paper contains significant systematic measurement errors, but it is no longer possible to remeasure and correct the errors. Therefore, we would like to retract this figure. The retraction of Fig. 2 will not affect the findings in the rest of the paper.

## REFERENCES

- <sup>1</sup>J. Lu *et al.*, “Physical properties of Hastelloy® C-276™ at cryogenic temperatures,” *J. Appl. Phys.* **103**, 064908 (2008).
- <sup>2</sup>A. F. Clark, “Low temperature of thermal expansion of some metallic alloys,” *Cryogenics* **8**, 282 (1968).
- <sup>3</sup>K. Radcliff, R. P. Walsh, and R. P. Reed, “The low temperature thermal expansion of materials used for superconducting magnets,” presentation M2Or1C-08 at CEC-ICMC Conference, Hartford, CT, July 21–25, 2019, see <https://indico.cern.ch/event/760666/contributions/3391069/>.