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Corrigendum to "Comparing Structure-Property Evolution for PM-HIP and Forged Alloy 625 Irradiated with Neutrons to 1dpa" [Mater. Sci. Eng. A (2022) 144058]

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Corrigendum to "Comparing structure-property evolution for PM-HIP and forged alloy 625 irradiated with neutrons to 1dpa" [Mater. Sci. Eng. A (2022) 144058]

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The authors regret that after publication, they discovered that the dislocation loop number density was undercounted by a factor of 100 for both the PM-HIP and forged specimens. While this does not change the original major conclusions, this necessitates a change in the results presentation (Sections 3.2 and 4.1) and calculated hardening (Table 3, Fig. 5). Corrections to these affected sections are provided in this corrigendum.

Section 3.2

The dislocation loop number densities stated in the text should be $\sim 1.4 \times 10^{22}$ and $\sim 1.1 \times 10^{22}$ m^{-3} for the PM-HIP and forged specimens, respectively.

Section 4.1

The corrected higher dislocation loop number densities affect the calculated irradiation hardening using the Orowan dispersed barrier hardening (DBH) model. Using a single strength factor for dislocation loops ($\boldsymbol{\alpha} = 0.3$), rather than a size-dependent $\boldsymbol{\alpha}$ value, the fractional hardening contribution from dislocation loops increases compared to that reported in the original manuscript. Now, loops and cavities both have nearly equivalent fractional contributions to total hardening, as shown in the revised versions of Table 3 and Fig. 5. Nevertheless, the key conclusion still stands: that the higher cavity population explains the greater hardening and reduction in elongation of the forged materials compared to the PM-HIP materials.

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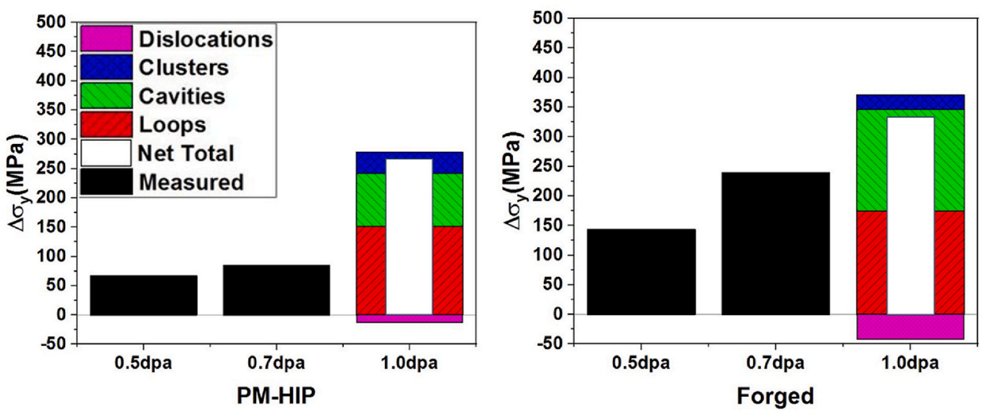
Revised Table 3

Specimen	Feature	Measurement	As-Received (from ref. [32])		Irradiated (~1 dpa)	
			Value	Sink Strength [10^{14} m^{-2}]	Value	Expected hardening [MPa]
PM-HIP	Grains	Diameter [10^{-6} m]	6.9 ± 10	0.005	n/a	n/a
	Loops	Diameter [10^{-9} m]	–		4.8 ± 0.21	152 ± 2.0
		No. density [10^{22} m^{-2}]	–	–	1.41 ± 0.04	
	Cavities	Diameter [10^{-9}m]	–	–	2.4 ± 0.20	90.3 ± 5.1
		No. density [10^{20}m^{-3}]	–	–	8.96 ± 3.15	
	Si clusters	Diameter [10^{-9} m]	–	–	5.77 ± 0.19	36.3 ± 3.3
		No. density [10^{22} m^{-2}]	–	–	6.69 ± 1.68	
	Lines	Density [10^{13} m^{-2}]	1.6 ± 0.3	0.2	1.37 ± 0.26	− 14.0 ± 3.9
	Total	–	–	–	–	264 ± 15
Forged	Grains	Diameter [10^{-6} m]	9.0 ± 8.2	0.003	n/a	n/a
	Loops	Diameter [10^{-9} m]	–	–	8.1 ± 0.24	174 ± 3.0
		No. density [10^{22} m^{-2}]	–	–	1.10 ± 0.02	
	Cavities	Diameter [10^{-9}m]	–	–	2.2 ± 0.12	172 ± 2.8
		No. density [10^{20}m^{-3}]	–	–	37.6 ± 15.4	
	Si clusters	Diameter [10^{-9} m]	–	–	3.56 ± 0.27	24.8 ± 3.0
		No. density [10^{22} m^{-2}]	–	–	4.97 ± 0.95	
	Lines	Density [10^{13} m^{-2}]	8.5 ± 1.3	1.22	6.28 ± 1.68	− 43.5 ± 3.8
	Total	–	–	–	–	327 ± 13



Revised Fig. 5

The authors would like to apologise for any inconvenience caused.