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Erratum

Erratum to "Seebeck effect in carbon fiber reinforced cement"☆

Sihai Wen, D.D.L. Chung*

Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA

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Paper 1. S. Wen and D.D.L. Chung, Seebeck effect in carbon fiber reinforced cement, *Cem. Concr. Res.* 29 (12), (1999) 1989–1993.
Paper 2. S. Wen and D.D.L. Chung, Seebeck effect in steel fiber reinforced cement, *Cem. Concr. Res.* 30 (4), (2000) 661–664.
Paper 3. S. Wen and D.D.L. Chung, Enhancing the Seebeck effect in carbon fiber reinforced cement by using intercalated carbon fibers, *Cem. Concr. Res.* 30 (8), (2000) 1295–1298.
Paper 4. S. Wen and D.D.L. Chung, Electrical behavior of cement-based junctions including the pn-junction, *Cem. Concr. Res.* 31 (2), (2001) 129–133.
Paper 5. S. Wen and D.D.L. Chung, Cement-based thermocouples, *Cem. Concr. Res.* 31 (3), (2001) 507–510.

In each of the five papers listed, the conversion of the Seebeck coefficient (relative to copper) to the absolute thermoelectric power was done by using the wrong sign of the absolute thermoelectric power of copper (2.34 μV/°C). The corrected tables of the various papers are shown below.

Table 2 of Paper 2

Table 2
Volume electical resistivity, Seebeck coefficient (μV/°C) with copper as the reference, and the absolute thermoelectric power (μV/°C) of various cement pastes with steel fibers (S_f) or carbon fibers (C_f)

Cement paste	Volume fraction fibers	Resistivity (Ω cm)	Heating		Cooling	
			Seebeck coefficient	Absolute thermoelectric power	Seebeck coefficient	Absolute thermoelectric power
(i) S_f (0.5[a])	0.10%	$(7.8 \pm 0.5) \times 10^4$	-51.0 ± 4.8	-48.7 ± 4.8	-45.3 ± 4.4	-43.0 ± 4.4
(ii) S_f (1.0[a])	0.20%	$(4.8 \pm 0.4) \times 10^4$	-56.8 ± 5.2	-54.5 ± 5.2	-53.7 ± 4.9	-51.4 ± 4.9
(iii) S_f (0.5[a]) + SF	0.10%	$(5.6 \pm 0.5) \times 10^4$	-54.8 ± 3.9	-52.5 ± 3.9	-52.9 ± 4.1	-50.6 ± 4.1
(iv) S_f (1.0[a]) + SF	0.20%	$(3.2 \pm 0.3) \times 10^4$	-66.2 ± 4.5	-63.9 ± 4.5	-65.6 ± 4.4	-63.3 ± 4.4
(v) S_f (0.5[a]) + L	0.085%	$(1.4 \pm 0.1) \times 10^5$	-48.1 ± 3.2	-45.8 ± 3.2	-45.4 ± 2.9	-43.1 ± 2.9
(vi) S_f (1.0[a]) + L	0.17%	$(1.1 \pm 0.1) \times 10^5$	-55.4 ± 5.0	-53.1 ± 5.0	-54.2 ± 4.5	-51.9 ± 4.5
b C_f (0.5[a]) + SF	0.48%	$(1.5 \pm 0.1) \times 10^4$	$+1.45 \pm 0.09$[b]	$+3.79 \pm 0.09$[b]	$+1.45 \pm 0.09$[b]	$+3.79 \pm 0.09$[b]
b C_f (1.0[a]) + SF	0.95%	$(8.3 \pm 0.5) \times 10^2$	$+2.82 \pm 0.11$[b]	$+5.16 \pm 0.11$[b]	$+2.82 \pm 0.11$[b]	$+5.16 \pm 0.11$[b]
b C_f (0.5[a]) + L	0.41%	$(9.7 \pm 0.6) \times 10^4$	$+1.20 \pm 0.05$[b]	$+3.54 \pm 0.05$[b]	$+1.20 \pm 0.05$[b]	$+3.54 \pm 0.05$[b]
b C_f (1.0[a]) + L	0.82%	$(1.8 \pm 0.2) \times 10^3$	$+2.10 \pm 0.08$[b]	$+4.44 \pm 0.08$[b]	$+2.10 \pm 0.08$[b]	$+4.44 \pm 0.08$[b]

SF: silica fume; L: latex.
[a] % by mass of cement.
[b] From Ref. 1.

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* Corresponding author. Tel.: +1-716-645-2593x2243; fax: +1-716-645-3875.
E-mail address: ddlchung@buffalo.edu (D.D.L. Chung).

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Table 2 of Paper 1

Table 2
Seebeck coefficient (μV/°C) and absolute thermoelectric power (μV/°C) of eight types of cement paste

Cement paste	Heating		Cooling	
	Seebeck coefficient[a]	Absolute thermoelectric power	Seebeck coefficient[a]	Absolute thermoelectric power
(i) Plain	+0.35 ± 0.03	+2.69 ± 0.03	+0.38 ± 0.05	+2.72 ± 0.05
(ii) Silica fume	+0.31 ± 0.02	+2.65 ± 0.02	+0.36 ± 0.03	+2.70 ± 0.03
(iii) 0.5% fibers + silica fume	+1.45 ± 0.09	+3.79 ± 0.09	+1.45 ± 0.09	+3.79 ± 0.09
(iv) 1.0% fibers + silica fume	+2.82 ± 0.11	+5.16 ± 0.11	+2.82 ± 0.11	+5.16 ± 0.11
(v) 1.5% fibers + silica fume	+3.10 ± 0.14	+5.44 ± 0.14	+3.10 ± 0.14	+5.44 ± 0.14
(vi) Latex	+0.28 ± 0.02	+2.62 ± 0.02	+0.30 ± 0.02	+2.64 ± 0.02
(vii) 0.5% fibers + latex	+1.20 ± 0.05	+3.54 ± 0.05	+1.20 ± 0.05	+3.54 ± 0.05
(viii) 1.0% fibers + latex	+2.10 ± 0.08	+4.44 ± 0.08	+2.10 ± 0.08	+4.44 ± 0.08

[a] With copper as the reference.

Table 1 of Paper 3

Table 1
Seebeck coefficient (μV/°C) and absolute thermoelectric power (μV/°C) of eight types of cement paste

Cement Paste			Seebeck coefficient	Absolute thermoelectric power
Fiber type	Fiber content (% by weight of cement)	Admixture		
Pristine	0.5	SF	+1.87 ± 0.11	+4.21 ± 0.11
Pristine	1.0	SF	+3.13 ± 0.16	+5.47 ± 0.16
Pristine	0.5	L	+1.56 ± 0.08	+3.90 ± 0.08
Pristine	1.0	L	+2.48 ± 0.12	+4.82 ± 0.12
Intercalated	0.5	SF	+13.8 ± 1.13	+16.1 ± 1.13
Intercalated	1.0	SF	+18.9 ± 1.32	+21.2 ± 1.32
Intercalated	0.5	L	+9.76 ± 1.09	+12.1 ± 1.09
Intercalated	1.0	L	+12.5 ± 1.07	+14.8 ± 1.07

SF: silica fume; L: latex.

Table 1 of Paper 5

Table 1
Absolute thermoelectric power (μV/°C)

Cement paste	Volume fraction fibers	μV/°C	Type	Ref.
(i) Plain	0	+2.69 ± 0.03	weakly p	3
(ii) S_f (0.5[a])	0.10%	−48.7 ± 4.8	strongly n	4
(iii) C_f (0.5[a]) + SF	0.48%	+3.79 ± 0.09	weakly p	3
(iv) C_f (1.0[a]) + SF	0.95%	+5.16 ± 0.11	p	3
(v) C_f (0.5[a]) + L	0.41%	+3.54 ± 0.05	weakly p	3

SF = silica fume; L = latex; S_f = steel fibers; C_f = carbon fibers.
[a] % by mass of cement.

Table 2 of Paper 5

Table 2
Cement junctions

Junction	Pastes involved	Junction type	Thermocouple sensitivity (μV/°C)	
			Heating	Cooling
(a)	(iv) and (ii)	pn	70 ± 7	70 ± 7
(b)	(iii) and (ii)	pn	65 ± 5	65 ± 6
(c)	(v) and (ii)	pn	59 ± 7	58 ± 5
(d)	(i) and (ii)	pn	28 ± 4	–

The correction means that plain cement paste is slightly p-type rather than slightly n-type. In addition, it means that cement pastes with carbon fibers are more p-type and those with steel fibers are less n-type than reported. Hence, Tables 1 and 2 of Paper 5 should be corrected as shown. Note in Table 1 of Paper 5 that all cement pastes are p-type except for paste (ii). Note in Table 2 of Paper 5 that all cement junctions are pn-junctions (rather than some being nn^+-junctions).