

Article

# Facile Two-Step Deposition of Calcium Oxalate Film on Dolomite to Improve Acid Rain Resistance

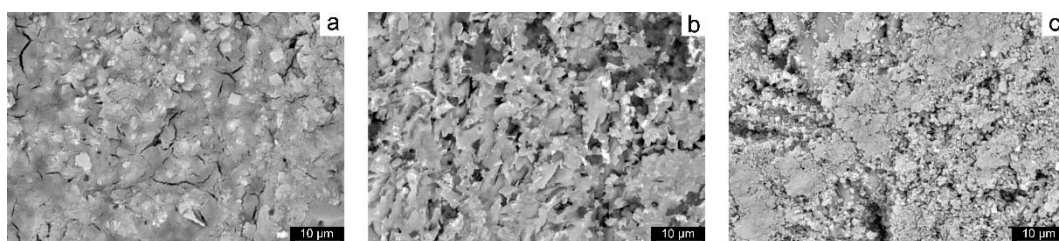
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**Figure S1.** The SEM of dolomite after different composition solution B treatment (a) calcium acetate + dimethyl oxalate, (b) calcium acetate + dimethyl oxalate + nitric acid, (c) calcium acetate + dimethyl oxalate + sodium hydroxide.

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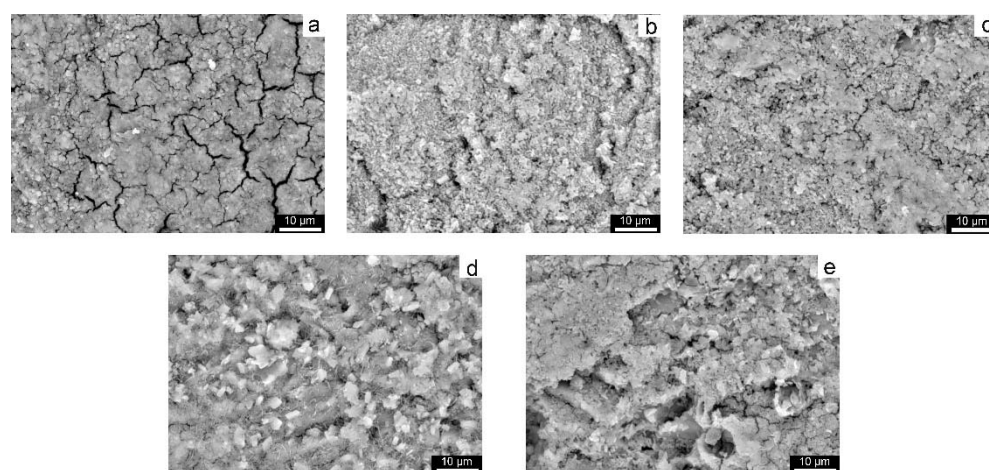
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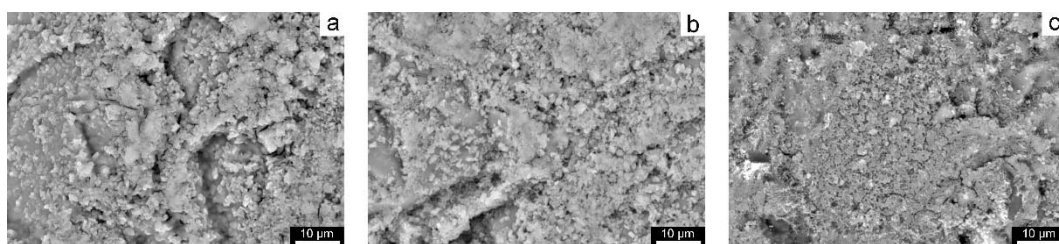
The Figure s1 illustrated the influence of solution B composition, which lead to crack or patch on the calcium oxalate film. These results are likely to be related to the different hydrolysis process of dimethyl oxalate.



**Figure S2.** The SEM of dolomite after different additive content solution B treatment (a) 0.0001mol, (b) 0.0002mol, (c) 0.0003mol, (d) 0.0004mol, (e) 0.0005mol.

To investigated the influence of different additive content solution B on film morphology, here we prepared a series of solution with different NaOH content (0.0001–0.0005mol). With the content increase, the crack first decreased and then increase. The

results demonstrate that the NaOH has a positive correlation effect on the film completeness.



**Figure S3.** The SEM of dolomite after solution B treatment (a) spray, (b) poultice, (c) brush.

It showed the morphology of CA specimen after different treatment method.

The results demonstrated that spray treatment method can form a coverage layer on the roughness surface.

**Table S1.** Chromatic value of sample.

Type	L	a	b	c
UT	92.53	-0.54	0.08	0.55
	92.42	-0.59	0	0.59
	90.88	-0.64	0.2	0.67
	90.94	-0.69	0.09	0.7
	91.83	-0.62	0.1	0.63
AO	91.08	0	0.97	0.97
	92.2	0	0.87	0.87
	89.6	-0.51	0.09	0.52
	88.09	-0.55	0.54	0.77
	89.58	-0.34	1.13	1.18
0.02 mol/L CA	92.99	-0.42	0.78	0.89
	93.56	-0.3	0.77	0.83
	92.21	-0.34	1.02	1.08
	90.13	-0.36	1.08	1.14
	92.93	-0.39	0.88	0.96

To get a reliable test result, for each sample five area was analyzed.