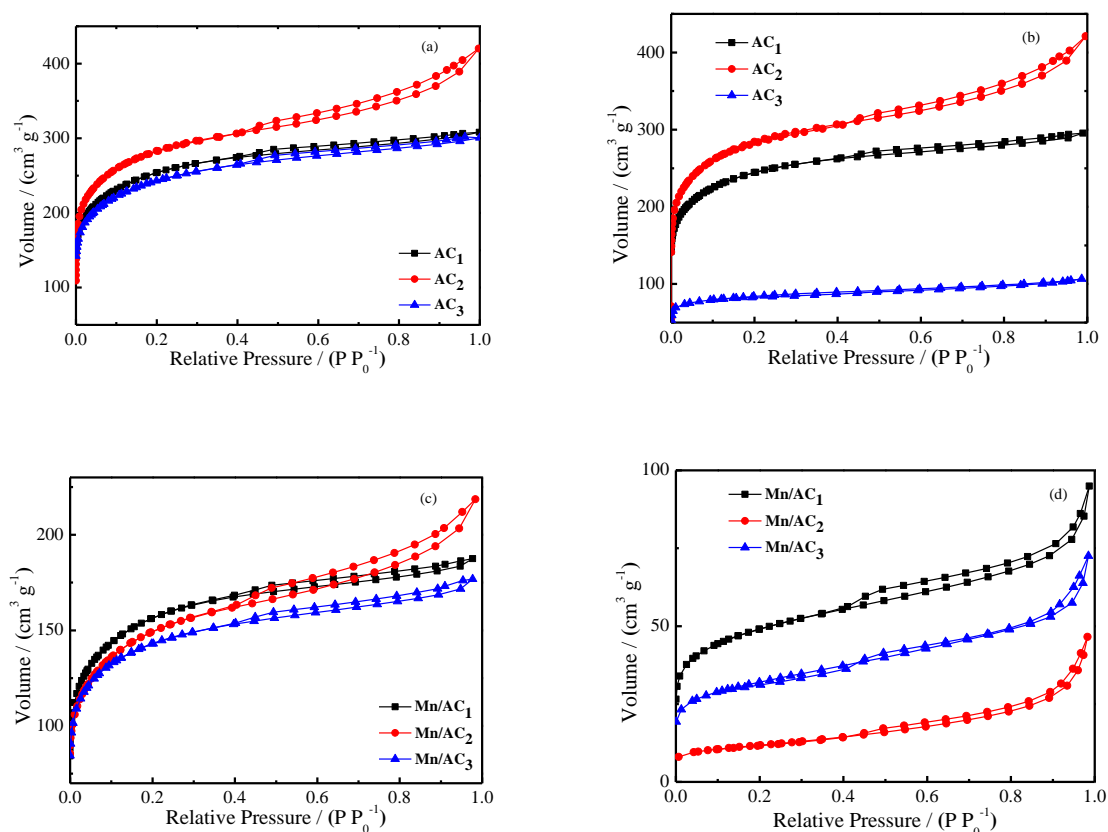


**Three Different Types of Activated Carbon and Manganese-Modified Activated Carbons as Deoxidizers for the Low-Concentration Coalbed Methane Deoxidation**

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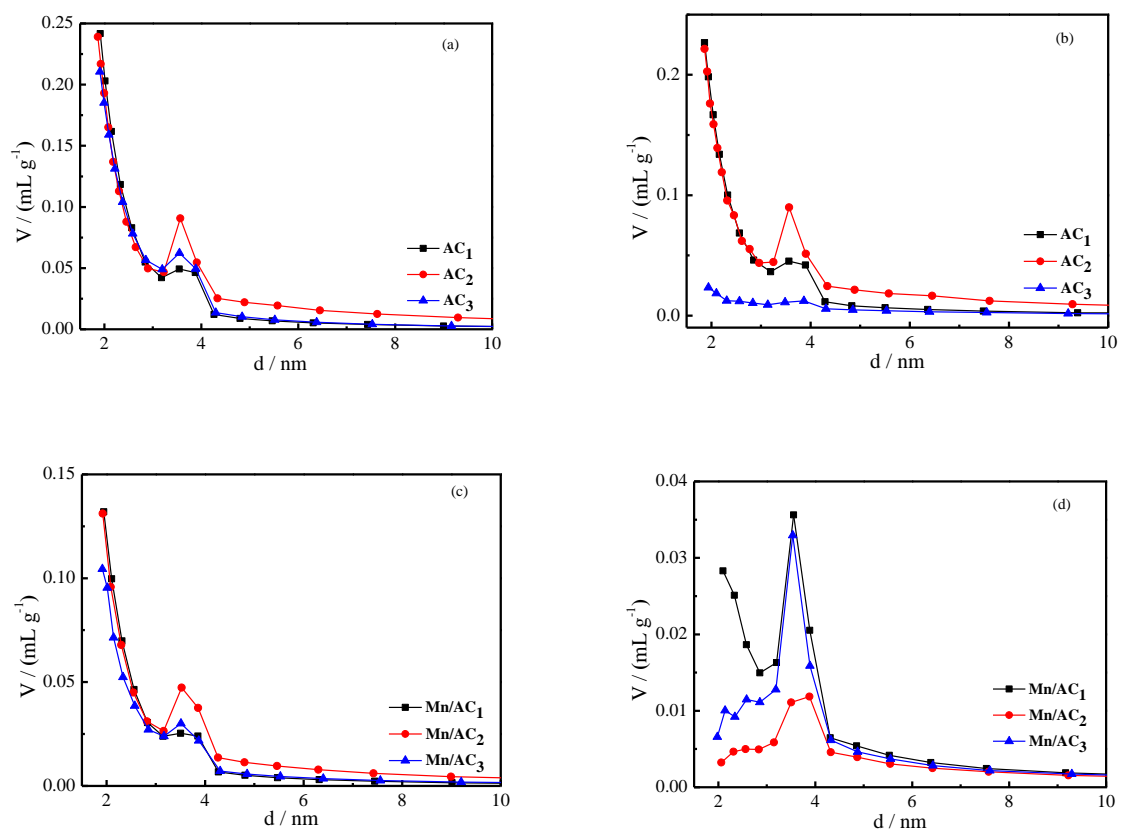
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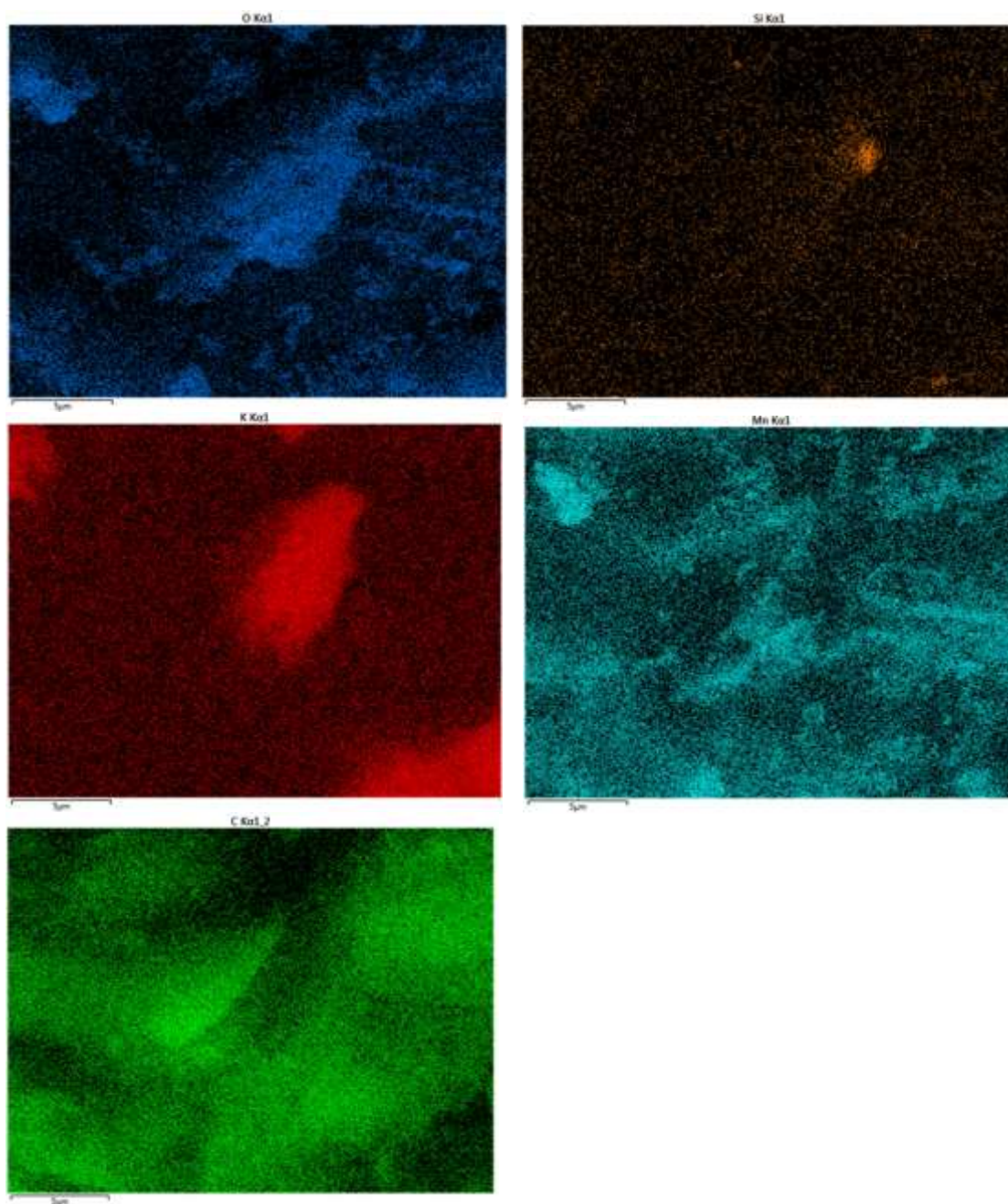


**Figure S1.** Adsorption-desorption curve before and after reaction of different deoxidizers: (a) AC<sub>x</sub> (x = 1, 2, 3) before reaction; (b) AC<sub>x</sub> (x = 1, 2, 3) after reaction; (c) Mn/AC<sub>x</sub> (x = 1, 2, 3) before reaction; (d) Mn/AC<sub>x</sub> (x = 1, 2, 3) after reaction.

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**Figure S2.** Pore size distribution before and after reaction of different deoxidizers: (a)  $AC_x$  ( $x = 1, 2, 3$ ) before reaction; (b)  $AC_x$  ( $x = 1, 2, 3$ ) after reaction; (c)  $Mn/AC_x$  ( $x = 1, 2, 3$ ) before reaction; (d)  $Mn/AC_x$  ( $x = 1, 2, 3$ ) after reaction.



**Figure S3.** Element mapping pattern of Mn/AC<sub>2</sub> before reaction (a) O, (b) Si, (c) K, (d) Mn, (e) C, respectively.