Supplementary information

Determination of ADH in textiles using HPLC-MS/MS method and the study of its adsorption behaviour towards formaldehyde

Jinxiong Tao,*,a Ziwei Lin,a Haixuan Zhang,a Zhuoming Wu a and Haihui Cao b

a Shenzhen Academy of Metrology and Quality Inspection, Shenzhen 518000, P. R. China
b Embry (China) Garments Co. Ltd, Shenzhen, Guangdong, 518000, P. R. China.
*Corresponding author: E-mail: taojinxiong@yeah.net; Tel: +86-0755-27528470

Fig. S1  The separation effect of different columns
Table S1 Determination value of ADH in textiles under different extracting modes

| sample | extracting mode            | testing results, mg kg\(^{-1}\) |
|--------|-----------------------------|---------------------------------|
|        |                             | parallel sample 1 | parallel sample 2 | average |
| A      | shaking bath extraction     | 15                  | 15                | 15      |
|        | ultrasonic extraction       | 16                  | 16                | 16      |
| B      | shaking bath extraction     | 417                 | 413               | 415     |
|        | ultrasonic extraction       | 444                 | 441               | 442     |
| C      | shaking bath extraction     | 650                 | 644               | 647     |
|        | ultrasonic extraction       | 669                 | 681               | 675     |

Fig. S2 Comparison of the extraction efficiencies on ADH in textiles under different extracting modes

Table S2 Recovery rate and RSD values of ADH determination in real samples

| Items                          | Added (mg L\(^{-1}\)) | Testing results |
|--------------------------------|------------------------|-----------------|
|                                | 0.20                   | 0.50            | 1.00            |
| Found (mg L\(^{-1}\))         | 0.20                   | 0.43            | 0.86            |
|                                | 0.19                   | 0.44            | 0.85            |
|                                | 0.19                   | 0.44            | 0.86            |
|                                | 0.19                   | 0.43            | 0.87            |
|                                | 0.19                   | 0.44            | 0.87            |
|                                | 0.19                   | 0.44            | 0.87            |
|                                | 0.20                   | 0.44            | 0.88            |
|                                | 0.20                   | 0.44            | 0.89            |
| Average value/(mg L\(^{-1}\)) | 0.19                   | 0.44            | 0.87            |
| Recovery (%)                   | 95                     | 88              | 87              |
| SD (mg L\(^{-1}\))            | 0.005                  | 0.021           | 0.045           |
| RSD (%)                        | 2.7                    | 4.8             | 5.2             |
Fig. S3  Photographs of samples S0, S3, S5 and S11

\[
\begin{align*}
\text{H}_2\text{N} & \quad \text{NH} \quad \text{NH}_2 & + & \text{H} \quad \text{H} \\
\text{O} & \quad \text{C} & \quad \text{C} & \quad \text{O} & \quad \text{O} \\
\text{H}_2\text{N} & \quad \text{NH} \quad \text{NH} \quad \text{NH}_2 & + & \text{H}_2\text{O}
\end{align*}
\]

Fig. S4  Reaction mechanism of ADH and formaldehyde in the balance of adsorption and desorption.