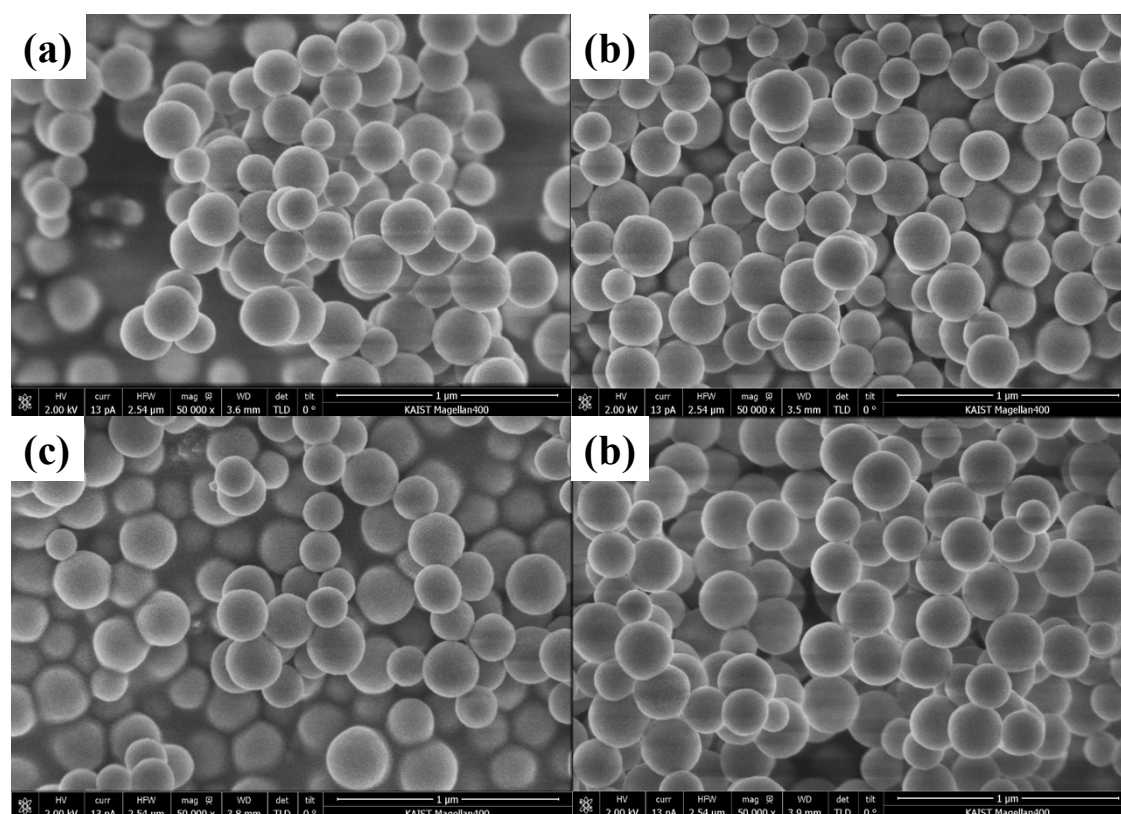


## 1 Supplementary materials

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### 3 Figure S1



4 **Figure S1.** SEM results of the (a) bare, (b) amine, (c) methyl, and (d) propyl  
5 modified silica NPs.  
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9 Further tests were performed to evaluate the viscosity of the decontamination foam  
10 solution with bare and modified silica NPs. The viscosity of the decontamination foam  
11 solution with amine-modified silica NPs was greater than that of the bare and other  
12 modified silica NPs (Fig. S2), because more silica NPs were existing per unit volume due  
13 to the smaller particles. According to these results, the amine-modified silica NPs in the  
14 same solid portion increased the viscosity, improving the coalescence resistance.  
15 Recently, previous study described that the silica NP diameter has a definite effect on  
16 the comparative viscosity of suspensions based on low viscosity liquids. In other words,  
17 the smallest particles have the highest viscosity.<sup>1,2</sup> We found the same trend in our  
18 results.

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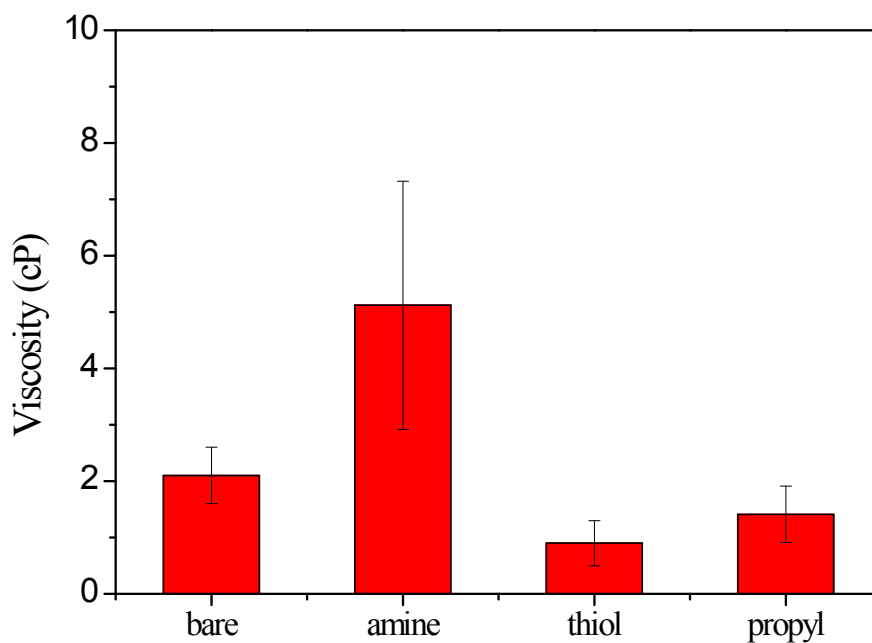
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1 **Figure S2**

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4 **Figure S2.** Viscosity of decontamination foam solution with 1 wt.% bare, amine,  
5 thiol, and propyl modified silica NPs in 1%(v/v) EM100. Values are the average  
6 of triplicate experiment.

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13 **References**

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