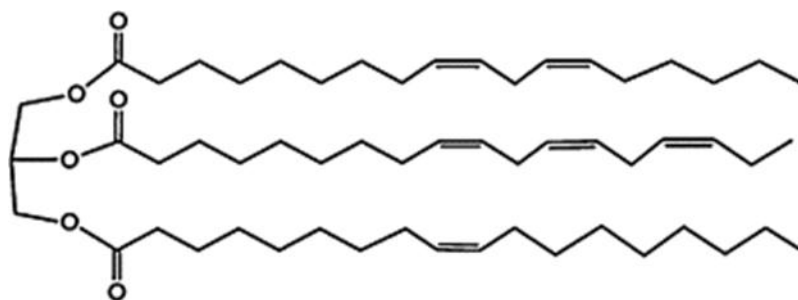
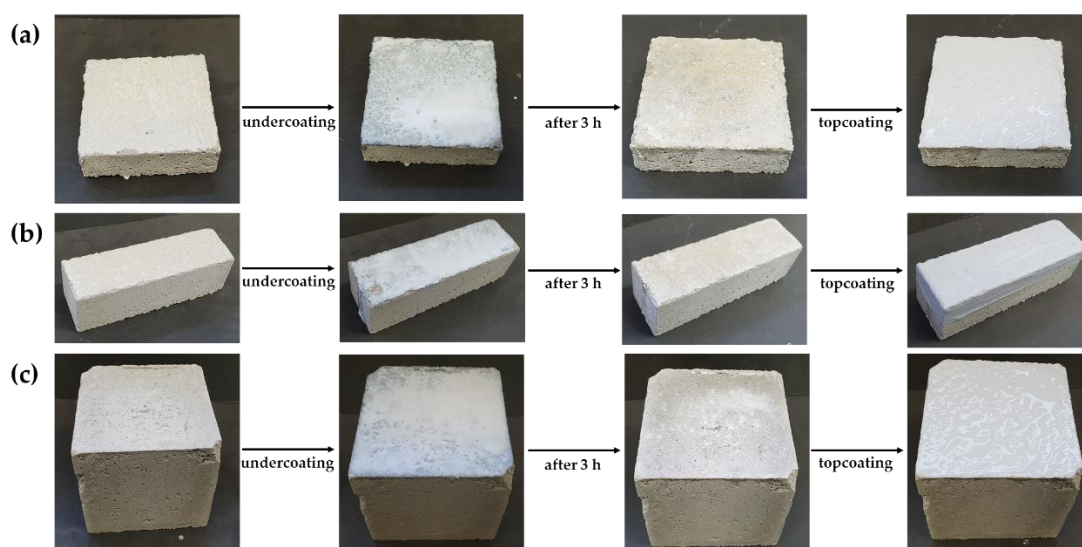


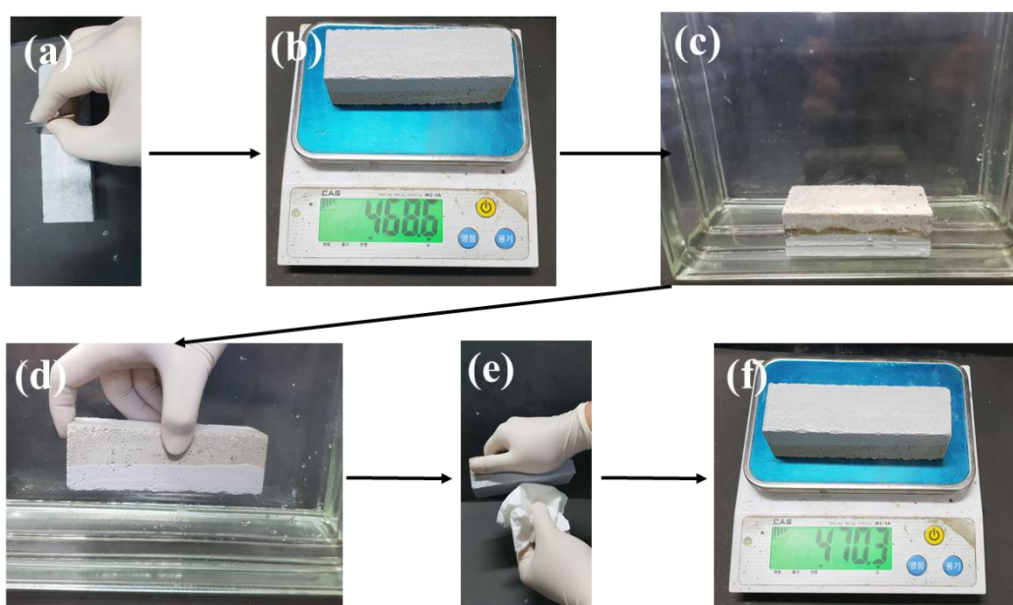
## Supplementary Materials



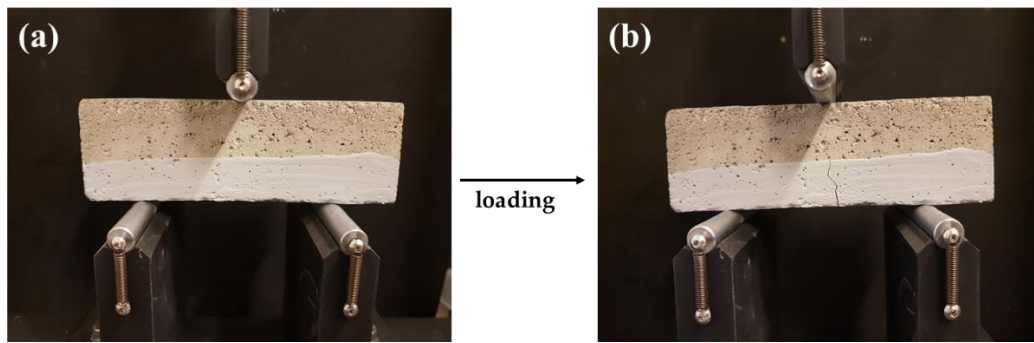
**Figure S1.** Chemical structure of linseed oil.



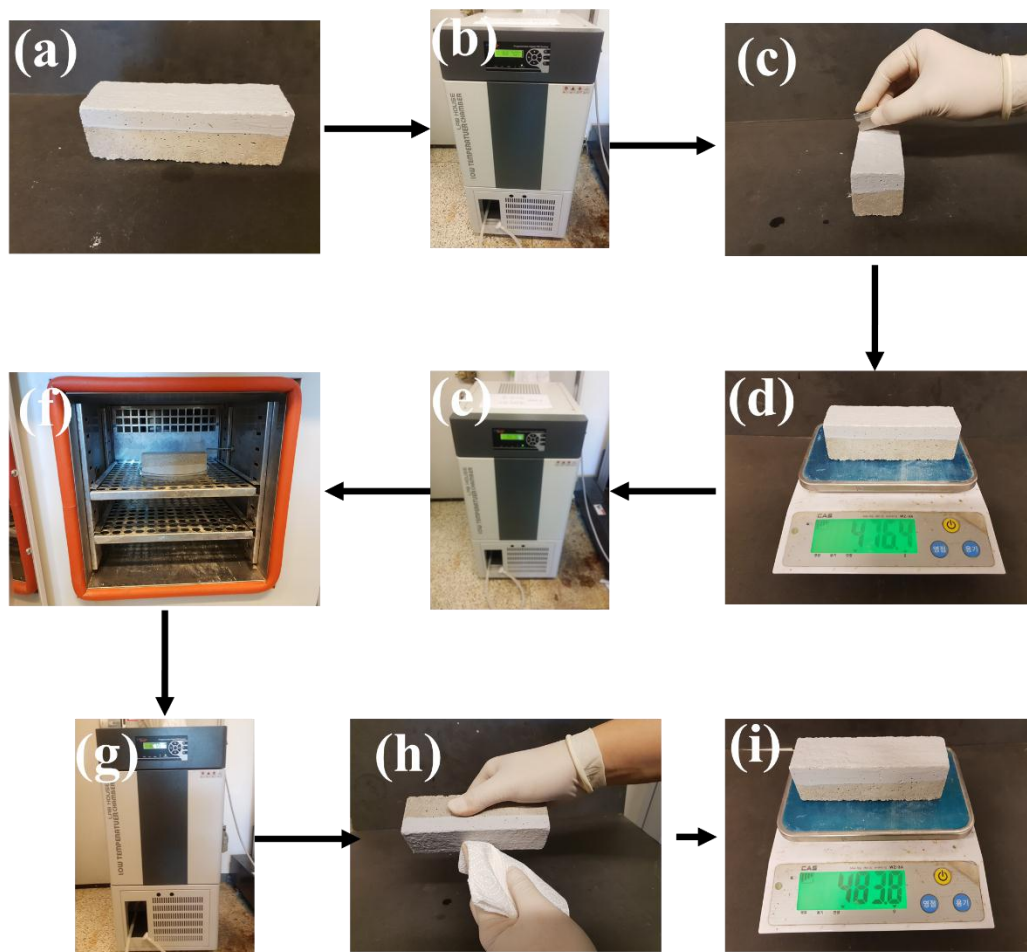
**Figure S2.** Procedures of coated mortar specimens for (a) adhesion strength measurement, (b) water sorptivity test and (c) accelerated carbonization test.



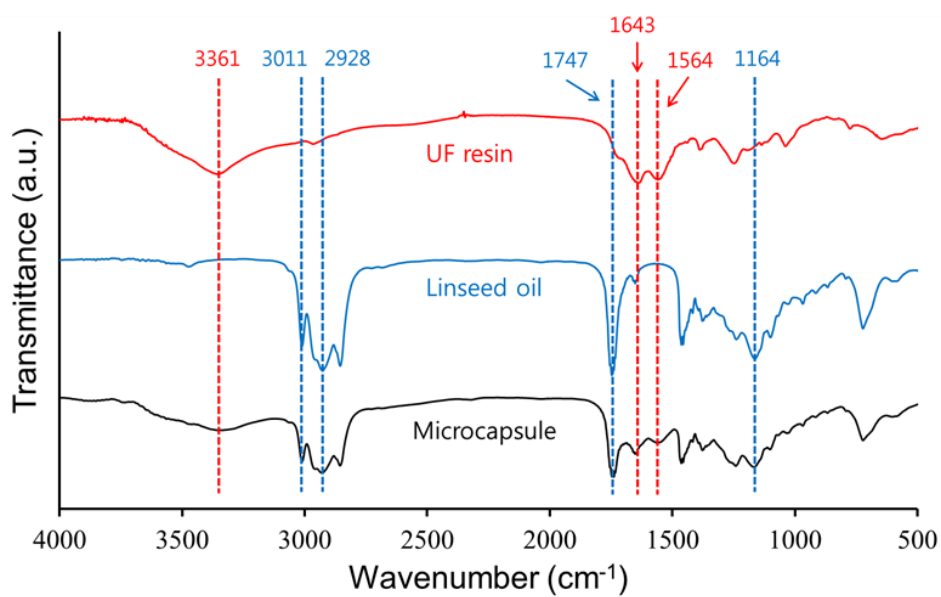
**Figure S3.** Procedure for water sorptivity test: (a) scratching a coating on a mortar specimen; (b) weighing; (c) immersion of coated side of the specimen in water; (d) taking the specimen out of a water bath; (e) wiping the immersed surfaces and drying; (f) weighing.



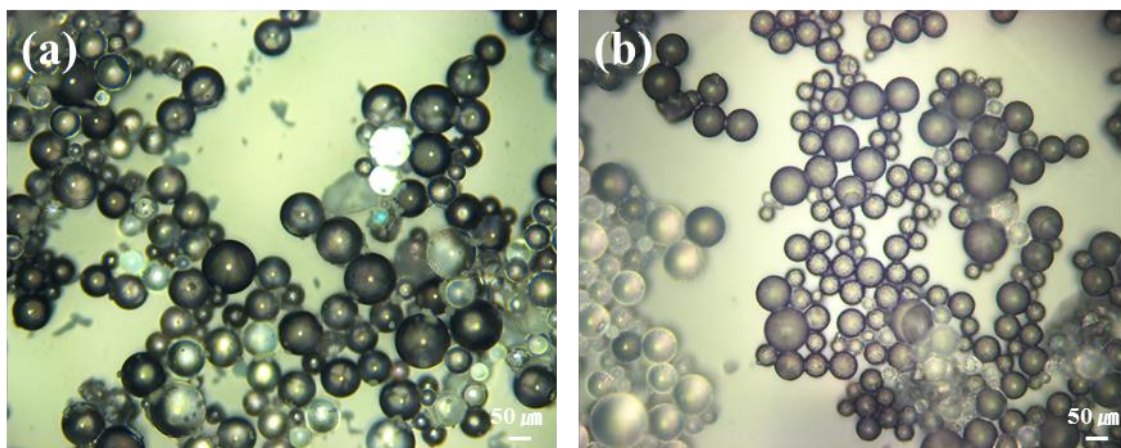
**Figure S4.** Generation of a crack on coated side of a mortar specimen by UTM: (a) before and (b) after cracking.



**Figure S5.** Procedure for saline solution sorptivity test at  $-20^{\circ}\text{C}$ : (a) coating on a mortar specimen; (b) storing the coated mortar specimen at  $-20^{\circ}\text{C}$  in a low-temperature chamber for 24 h; (c) scratching the coating on mortar specimen; (d) weighing; (e) storing the specimen at  $-20^{\circ}\text{C}$  in the chamber for 48 h; (f) immersion of the coated side of the specimen in saline solution; (g) storing the specimen at  $-20^{\circ}\text{C}$  in the chamber for 48 h; (h) taking the specimen out of the saline solution and wiping the immersed surface; (i) weighing.



**Figure S6.** FT-IR spectra of linseed oil, UF and microcapsules.



**Figure S7.** Images of linseed oil-contained microcapsules (a) immediately after preparation and (b) after 13 months.