

Supplementary Materials: Water and Oil Repellent Finishing of Textiles by UV Curing: Evaluation of the Influence of Scaled-Up Process Parameters

Franco Ferrero, Monica Periolatto and Lorenzo Tempestini

Table S1. Correspondence between Minitab codes and process parameters for the plots of Figures S1–S8.

Minitab Code	Process Parameter	Code Value	Process Value
C2	Substrate	1	PM
		2	COT
		3	VIS
C3	Finish concentration	1	50 g/L Oleophobol or 40 g/L Pymasil
		2	35 g/L Oleophobol or 25 g/L Pymasil
		3	20 g/L Oleophobol or 10 g/L Pymasil
C4	Irradiance	1	146 (mW/cm ²)
		2	85 (mW/cm ²)
		3	67 (mW/cm ²)
C5	Contact angle (Water)		
C6	Contact angle (Oil)		
C8	ΔE (Datacolor)		

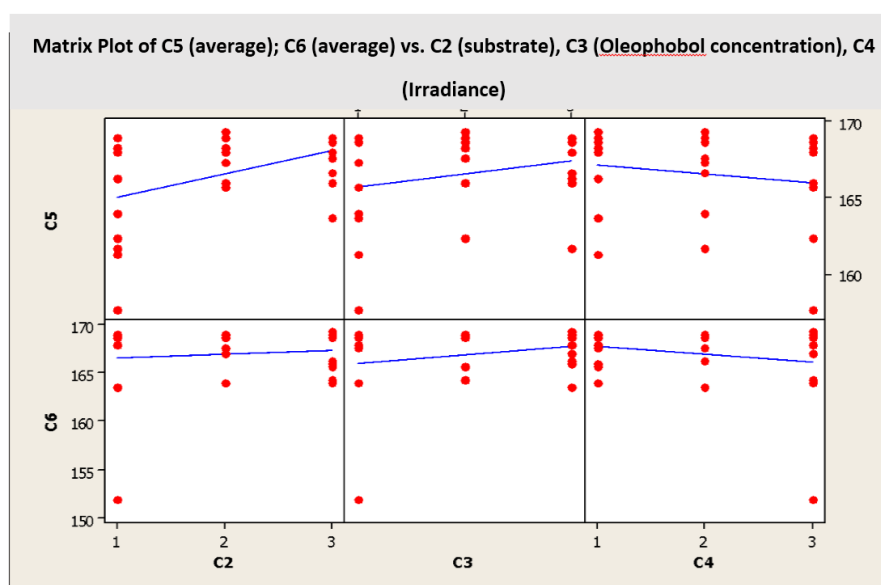


Figure S1. Matrix plot on average values of water and oil CA on Oleophobol-treated samples by UV radiation.

The equations of the regression lines are the following:

$$C5 = 1.576 C2 + 163.4 \quad R^2 = 19.3\% \quad (1)$$

$$C5 = 0.8889 C3 + 164.8 \quad R^2 = 6.1\% \quad (2)$$

$$C5 = -0.6106 C4 + 167.8 \quad R^2 = 2.9\% \quad (3)$$

$$C6 = 0.4067 C2 + 166.1 \quad R^2 = 0.9\% \quad (4)$$

$$C6 = 0.9067 C3 + 165.1 \quad R^2 = 4.7\% \quad (5)$$

$$C6 = -0.8156 C4 + 168.6 \quad R^2 = 3.8\% \quad (6)$$

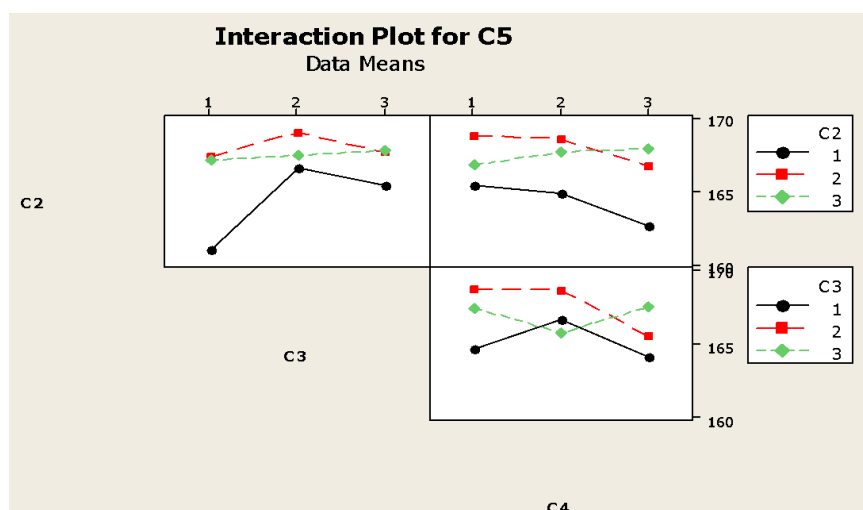


Figure S2. Interaction plot for water CA on Oleophobol-treated samples (C2: substrate; C3: Oleophobol concentration; C4: irradiance).

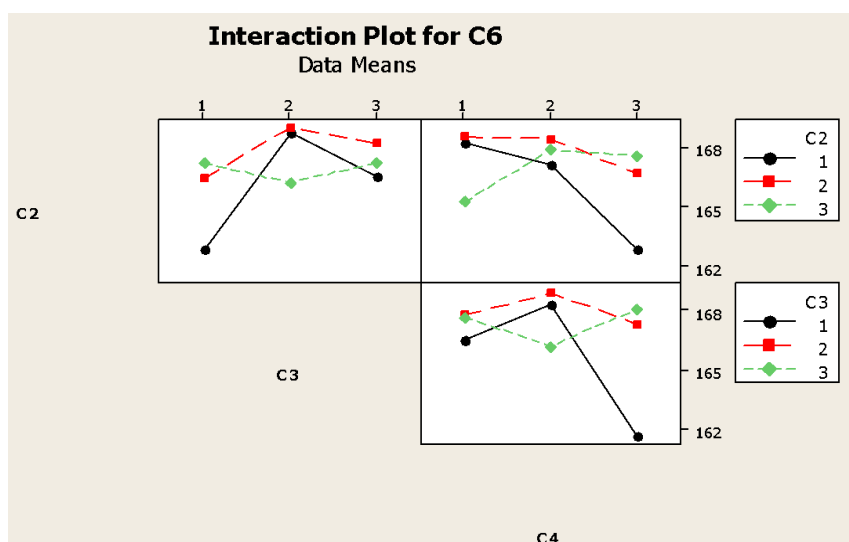


Figure S3. Interaction plot for oil CA on Oleophobol-treated samples (C2: substrate; C3: Oleophobol concentration; C4: irradiance).

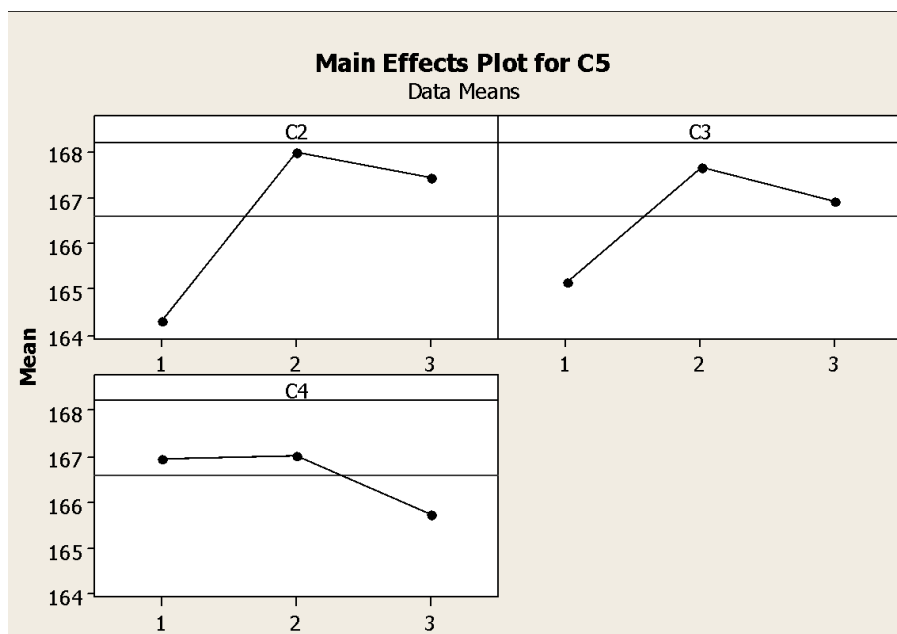


Figure S4. Main effect plot for water CA on Oleophobol-treated samples (C2: substrate; C3: Oleophobol concentration; C4: irradiance). Minitab also draws a reference line at the overall mean.

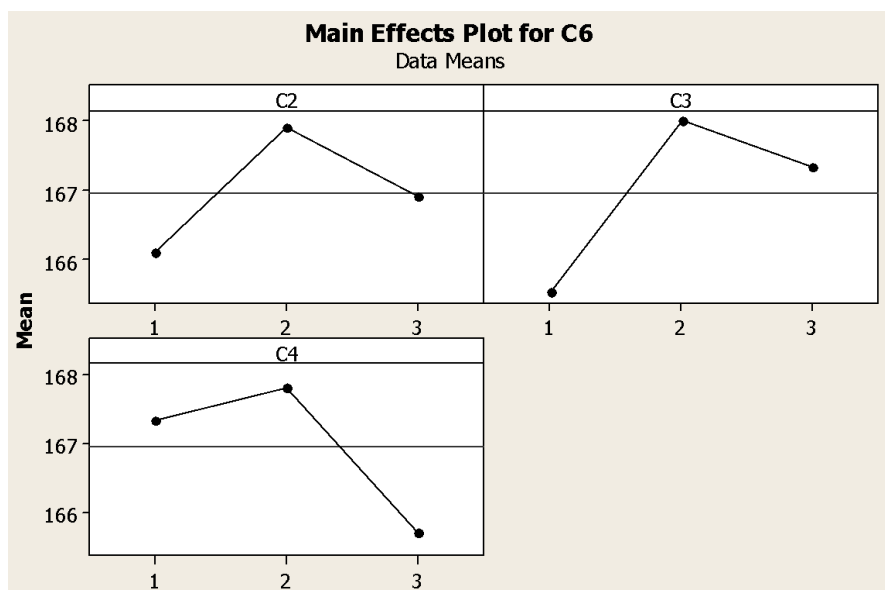


Figure S5. Main effect plot for oil CA on Oleophobol-treated samples (C2: substrate; C3: Oleophobol concentration; C4: irradiance). Minitab also draws a reference line at the overall mean.

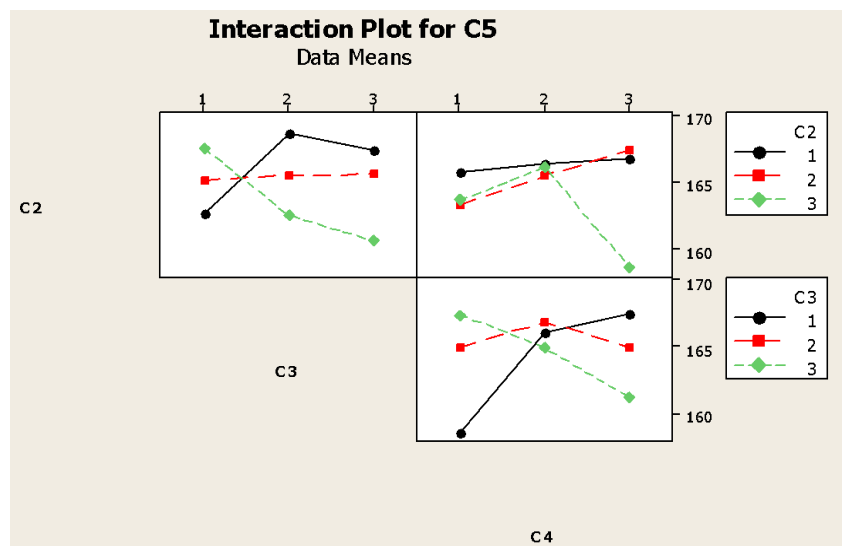


Figure S6. Interaction plot for water CA on Pymasil-treated samples (C2: substrate; C3: Pymasil concentration; C4: irradiance).

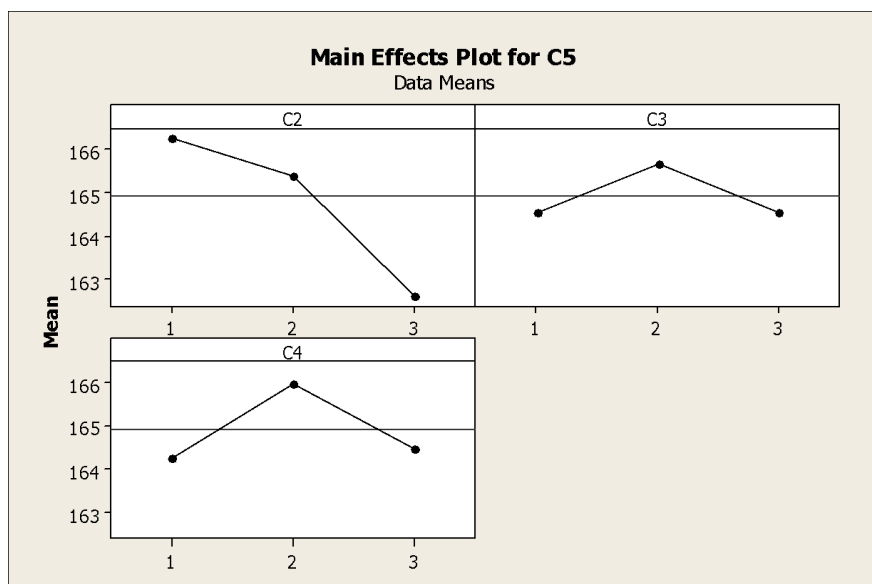


Figure S7. Main effect plot for water CA on Pymasil-treated samples (C2: substrate; C3: Pymasil concentration; C4: Irradiance). Minitab also draws a reference line at the overall mean.

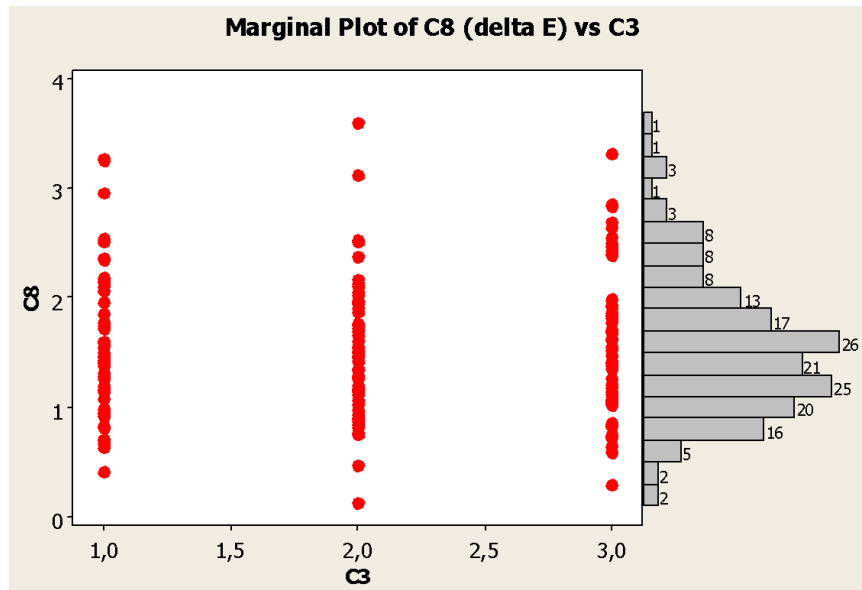


Figure S8. Marginal plot for ΔE Datacolor measurements (C3 finish product concentration).

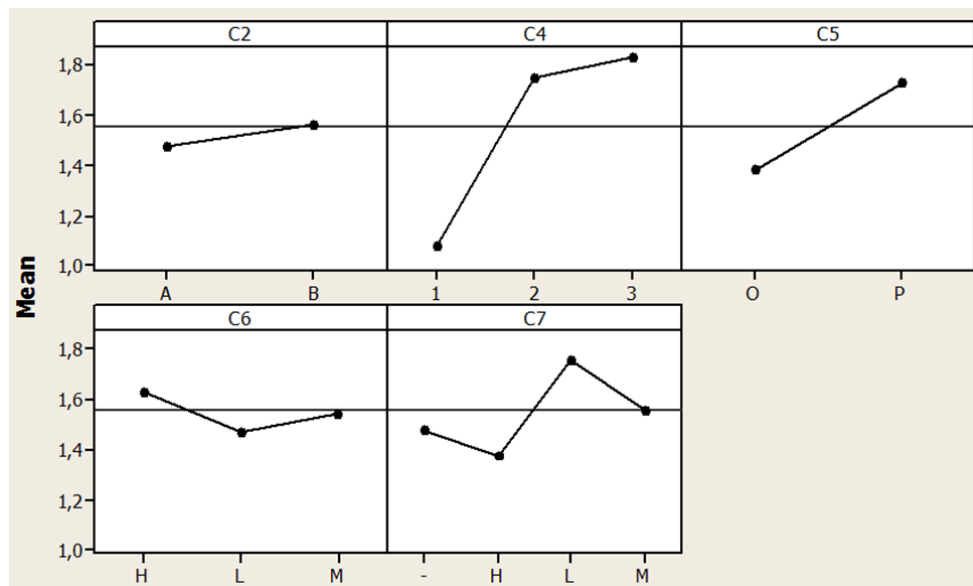


Figure S9. Main effects plot for Datacolor measurements (C2: finishing method, A thermal, B UV; C4: substrate, 1 PM, 2 COT, 3 VIS; C5: finishing agent, O Oleophobol, P Pymasil; C6: finishing concentration, H high, L low, M medium; C7: irradiance, 0 thermal, H high, L low, M medium). Minitab also draws a reference line at the overall mean.

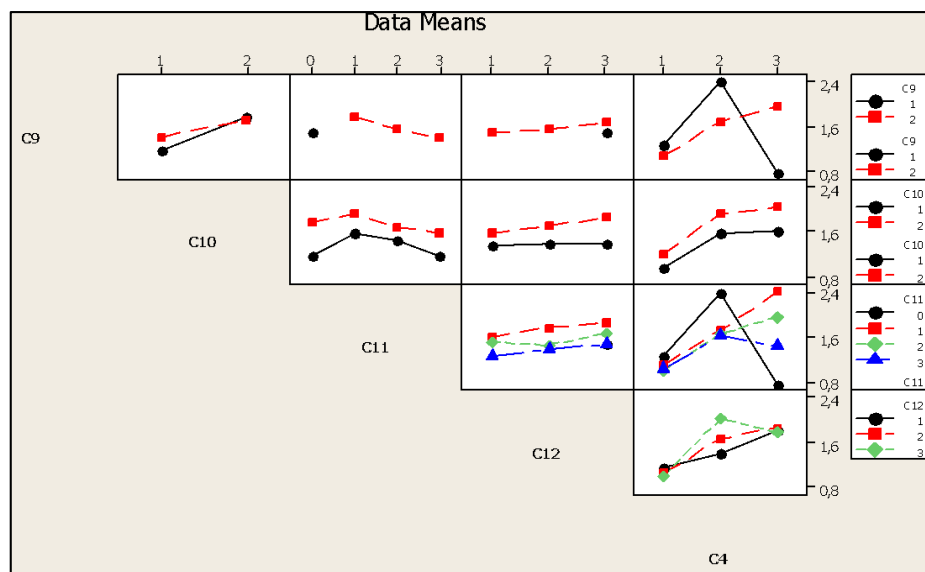


Figure S10. Interaction plot for Datacolor measurements (C9: finishing method, 1 Thermal, 2 UV; C10: finishing agent, 1 Oleophobol, 2 Pymasil; C11: UV irradiance, 0 thermal, 1, 2, 3 as C4 in S1 Table; C12: Oleophobol or Pymasil concentration, 1,2,3 as C3 in S1 Table; C4: substrate, 1 PM, 2 COT, 3 VIS).



© 2017 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons by Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).