Improving Cleaning Efficiency through the Measurement of Food Fouling Adhesive Strength Didem Sözeri Atik^{1*}, Ibrahim Palabiyik¹, Goksel Tirpanci Sivri¹, Suzan Uzun¹, Yusuf Koç², Kübra Çalışır² ¹ Department of Food Engineering, Tekirdağ Namık Kemal University, Tekirdağ, Turkey ²ARÇELİK A.Ş. R&D Center, İstanbul, Turkey dsozeri@nku.edu.tr, ipalabiyik@yahoo.com, gtirpanci@nku.edu.tr, suzanuzun@nku.edu.tr, yusufkoc3@gmail.com, clsrkubra@gmail.com *Corresponding author: Didem Sözeri Atik, Department of Food Engineering, Tekirdağ Namık Kemal University, Tekirdağ, Turkey Tel. +905397820439

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Figure S1. The sample pictures of soiled dinnerware set for the cleaning application in the dishwasher

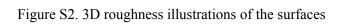


Table S1. Evaluation of the cleaning performance (59A/202/FDIS)*

Number of small dot shaped soil particles	Total solid area mm ²	Score
0	A=0	5
1-4	0 <a≤4< td=""><td>4</td></a≤4<>	4
5-10	4 <a≤20< td=""><td>3</td></a≤20<>	3
>10	20 <a≤50< td=""><td>2</td></a≤50<>	2
Not applicable	50 <a≤200< td=""><td>1</td></a≤200<>	1
Not applicable	200 <a< td=""><td>0</td></a<>	0

Each load item shall be awarded a score from the table according to the category of soil area or number of discrete soil particles adhering to the item. If the requirements for more than one score are met, the lowest applicable score shall be awarded.

^{*}IEC 60436 4th Edition. (2015). Electric dishwashers for household use-methods for measuring the performance.



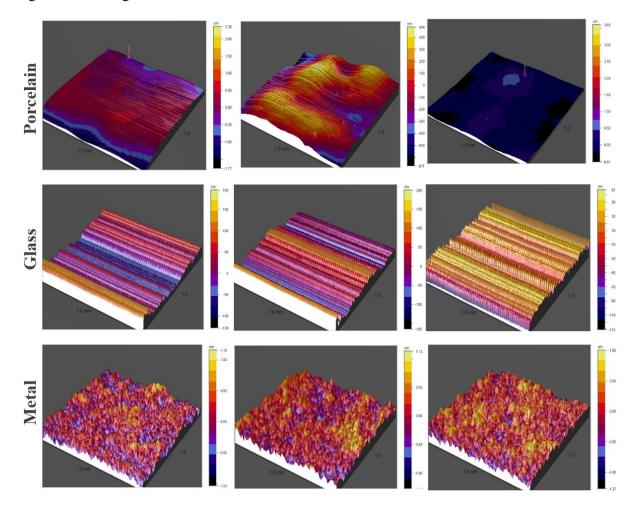


Figure S3. The placement of the soiled utensils in the dishwasher

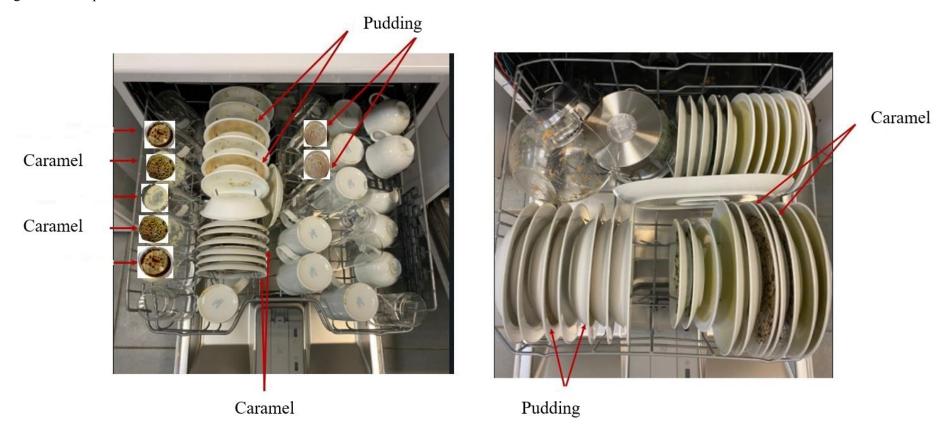


Figure S4.The images of PP, M, and EY soils before and after texture analysis (Soils; PP: potato puree, M: milk, EY: egg yolk; Surfaces: G: glass, PO: porcelain, SS: stainless steel)

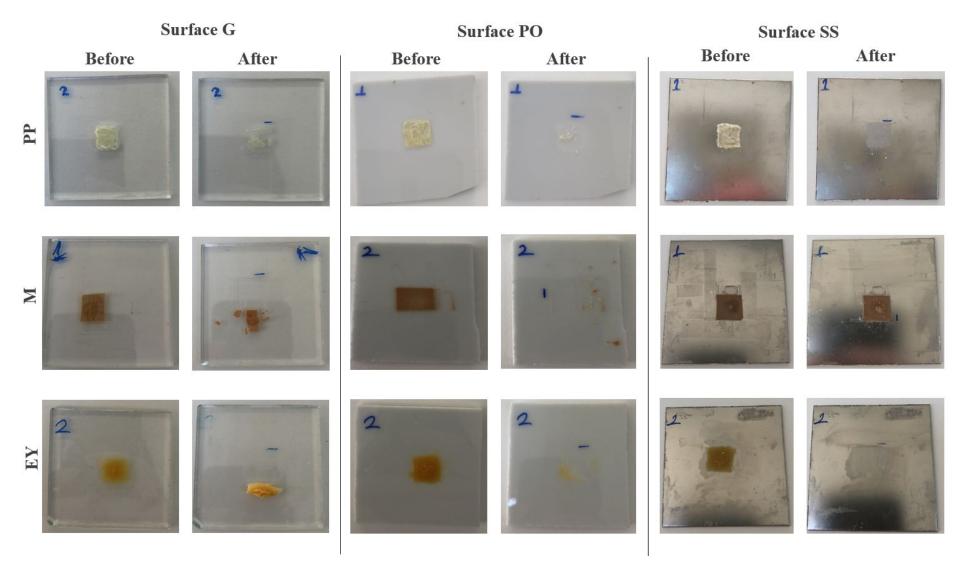


Figure S5. The images of S, MM, and MA soils before and after texture analysis *(Soils; S: spinach, MM: Minced meat, MA: margarine; Surfaces: G: glass, PO: porcelain, SS: stainless steel)

