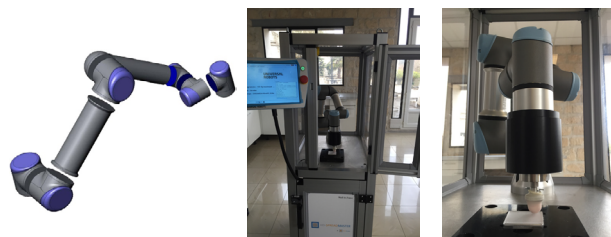


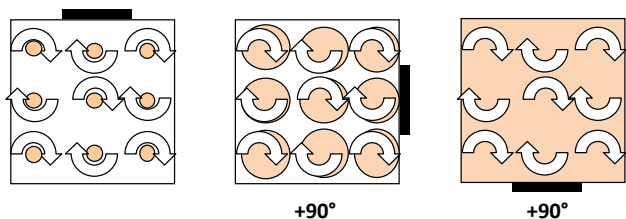
HD-SPREADMASTER Automated sunscreen spreading

The HD-SPREADMASTER is a robot which carries out the automatic spreading of the sunscreen on the substrate. It allows a total control of the product spreading and ensures the reproducibility of the In Vitro UV testing with a very low variability range.

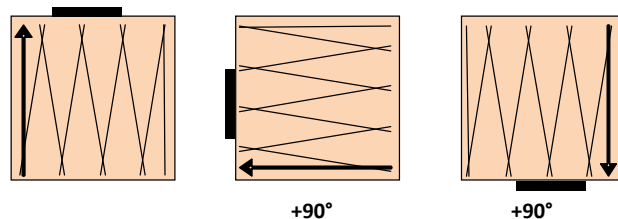


DESCRIPTION

First, 3 stages of distribution using small circular motions completed in < 30 s.



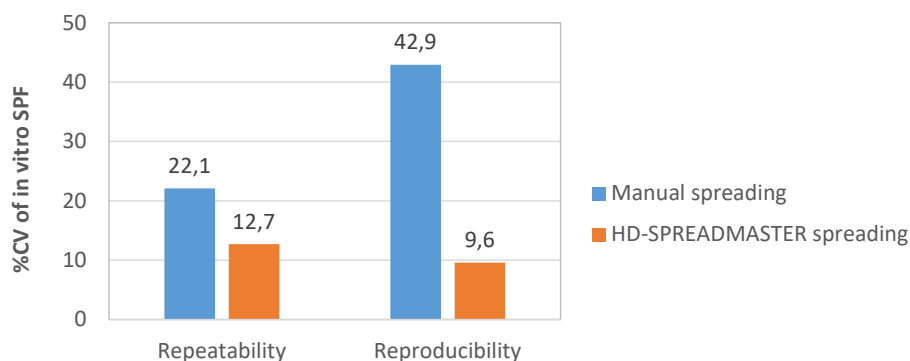
Second, 3 stages of rubs using alternating horizontal and vertical strokes completed in < 30 s.



RESULTS

The manual spreading with 8 different operators has been compared to the robotic spreading on 36 sunscreen products (including: O/W emulsions, W/O emulsions, oils, creams, lotions and sprays) coming from different worldwide companies.

*repeatability: within operator
*reproducibility: between operators



TECHNICAL SPECIFICATIONS

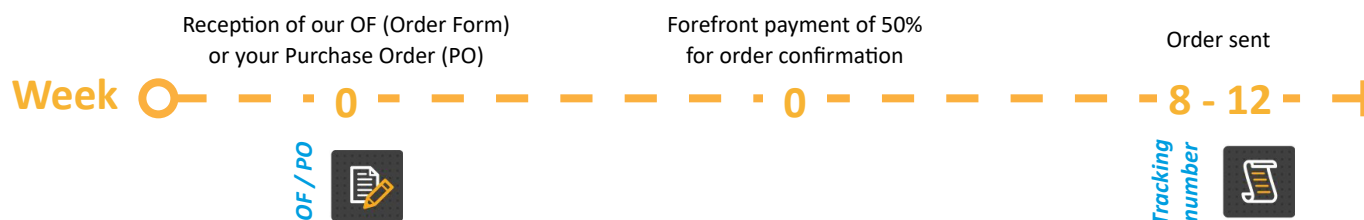
General

Weight: 140 kg
 Power supply: 100-240 VAC, 50-60 Hz
 Overall size (WxHxL): 800 mm x 1400 mm x 800 mm
 Working height: 800 mm
 Material: Aluminium, ABS Plastic
 Power consumption: Approx. 100 Watts
 IP Classification: IP54
 Temperature: Operational 0-50°C (safety limit 50°C)

Sun protection field

Spreading time: 1 min
 Spreading pressure: Approx. 200 g
 (to be controlled every 12-18 months)
 Spreading tool: Silicone material hardness 20 shores
 (to be replaced every 200-400 spreading)
 Substrates compliant: PMMA Molded Helioplates HD6
 PMMA Sandblasted Helioplates SB6
 HD-THERMASTER (option)

INFORMATION AND GENERAL TIMETABLE



[1] S. Miksa, D. Lutz and C. Guy. In Vitro UV Testing—Robot vs. Human Spreading for Repeatable, Reproducible Results, Cosmetics & Toiletries, October 2013