In-vivo Deodorant Efficacy Testing

Sensenet Product Testing Workshop

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Rennes, France

Rajal Shinkre, Director, Sensenet India

Unlock the power of science to make good smells better and to remove bad smells

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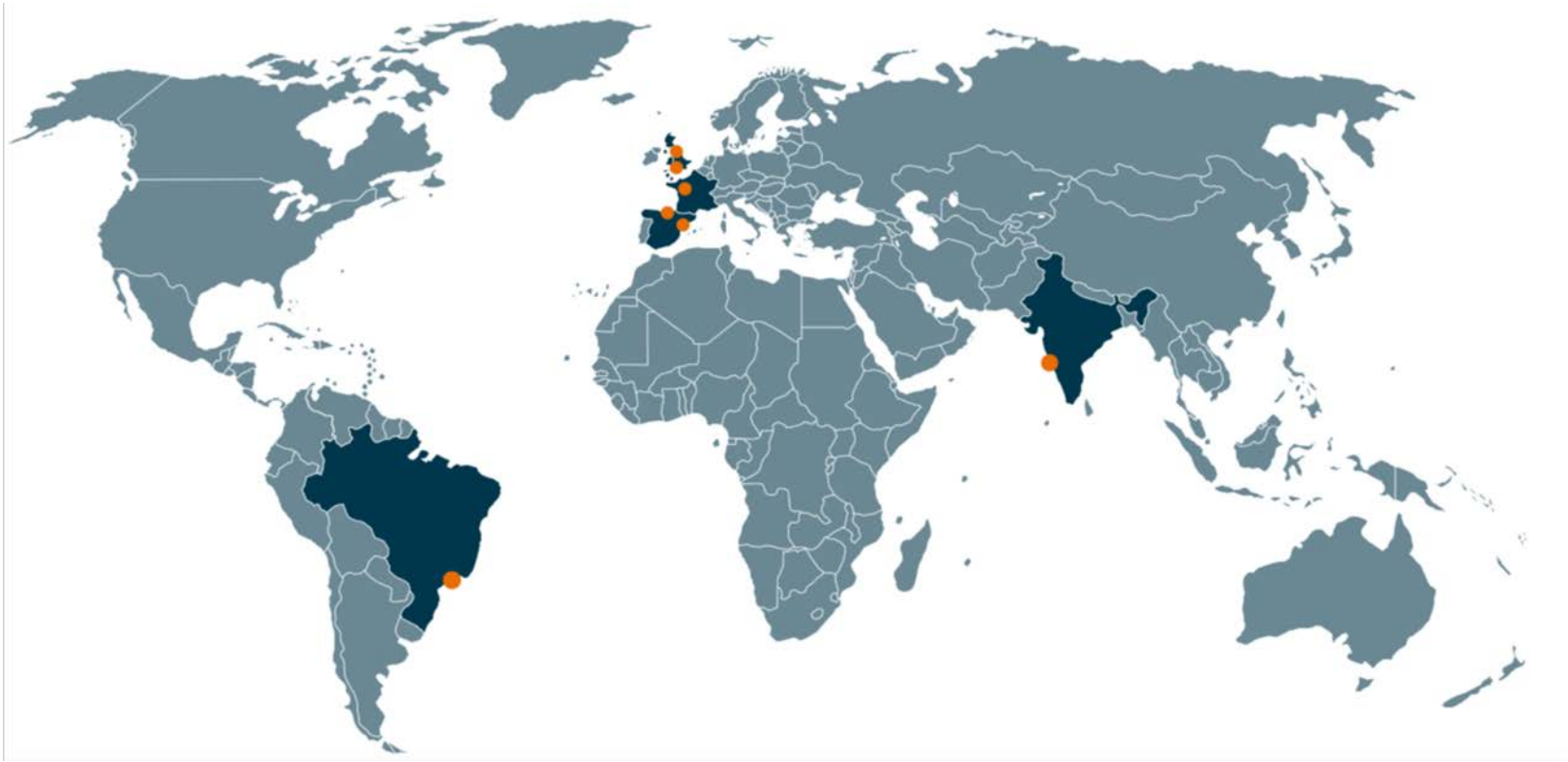

Deodorant and Antiperspirant Efficacy Tests

Our efficacy tests are designed to support the client in answering claim support questions such as:

- Is sweat odour masked by the product?
- How does performance vary with time?
- How long does the fragrance last?
- How is the performance affected by increased movement (e.g. in sports)?
- How is the performance affected by increased stress levels?

Sensenet has many years of experience in odour analysis and deodorant testing, we carry out in-vivo studies (Sniff studies), using human test subjects

Case Study for Deodorant Efficacy (In-vivo) Testing

Scope:

Claim substantiation of a deodorant, an in-vivo efficacy test (indirect sniffing) of 24h & 48h deodorizing efficacy after a single application of an aerosol spray product in the axilla of human subjects

Study population:

Male and Female

Assessments:

Body odour intensity of the axilla by 6 trained panel members (indirect sniffing of the pads placed in glass jars)

Study design

Controlled Washing at Lab

Wearing the T-shirts

Baseline Assessment 24 / 48 h

Product Application

Controlled Washing at Lab

Post Application Assessment 24 / 48 h

Washout phase

6 Panellists

Selected as per EN 13725

42 Volunteers

Data analysis and Report

Odour Intensity Evaluation

No deodorant
No cosmetics
No body care products etc
Subject qualified with a sniff score of 2.0

Test Protocol

Time	Day7 to Day 1	Day 1	Day2	Day 3	Day 4	Day 5
Activity	Washout Phase	Controlled Washing at Lab	t0 (24h): Baseline 24h Assessment	t0 (48h): Baseline 48h Assessment Controlled Washing at Lab	t1 (24h): Post-application 24h assessment	t2 (48h): Post-application 48h assessment
Test sample				Product Application		

Scale for malodour intensity assessment

A 6-point scale from 0 to 5 (according to the ASTM 1207-09: Standard Guide for Sensory Evaluation of Axillary Deodorancy) is used to record the sweat odour intensity by the trained sniffer panel:

Odour Intensity	Rating
Not perceptible	0
Very weak smell of sweat	1
Weak smell of sweat	2
Distinct smell of sweat	3
Strong smell of sweat	4
Extreme smell of sweat	5

Subject is qualified with a baseline sniff score of 2.0

Screening and training odour assessors in accordance with EN 13725

- Selection criteria as per EN13725 (using n-butanol) : 1) Individual odour sensitivity: 20 to 80 ppb 2) Standard deviation < 2.3
- The odour assessors are imparted special training of intensity perception using artificial sweat, at the olfactometer (according to EN 13725)
- An odour is offered to the panellists at different concentrations corresponding to certain odour intensity score (reference odour) in order to familiarize the panellists with the intensity scale
- The reference odorant is randomly presented to the panellists who assign the appropriate intensity score

For quality purpose, refresher training is conducted

RESULTS

Results of Sniff Test - 24h

Treatment	t0 (24h) Average	t1 (24h) Average			t1-t0
	Original Sniff Scores				Difference of Sniff Scores
Untreated	2.10	2.18			0.08
Deodorant	2.14	1.16			-0.98
Differences in Sniff Scores			⬇	⇩	
Deodorant vs. Untreated	0.04	-1.02			-1.06

Treatment effect ⬇: significantly lower sniff scores than baseline t0 (i.e. improvement)

Treatment effect ⇩: significantly lower sniff scores than untreated (i.e. improvement)

Results of Sniff Test - 48h

Treatment	t0 (24h) Average	t1 (24h) Average			t1-t0
Original Sniff Scores					Difference of Sniff Scores
Untreated	2.15	2.25			0.11
Deodorant	2.24	1.12	⬇	⇩	-1.12
Differences in Sniff Scores					
Deodorant vs. Untreated	0.09	-1.13			-1.22

Treatment effect ⬇ : significantly lower sniff scores than baseline t0 (i.e. improvement)

Treatment effect ⇩ : significantly lower sniff scores than untreated (i.e. improvement)

Statistics

- Two-sided hypothesis testing
- Significance level = 0.05 ($p > 0.05$, no significant difference and $p \leq 0.05$, significant difference)

- Baseline comparison between the two axillary regions did not show significant difference for both the time points; 24 and 48 h but when treated axilla was compared with untreated and baseline results, showed a significant difference.

Sensenet has deodorant and antiperspirant efficacy testing facilities in France, Spain and India, allowing intercultural sensory testing

- Wash cabins to allow controlled washing and product application
- Screened and trained sniffing panels for odour evaluation
- A panel of more than 100 volunteers in each branch to provide their underarms as a test field
- Advanced digital and cloud-based data collection tools
- High-performance statistical analysis

We can undertake studies in line with internationally accepted designs or develop bespoke studies that are optimised to meet your specific requirements, using internationally accepted methods such as ***ASTM E-1207 (Standard Guide for Sensory Evaluation of Axillary Deodorancy)***

Summary and Conclusion

- At t0 (24 and 48h) no significant difference could be detected between the axillary regions.
- At t1 & t2 (24 and 48h), no significant difference could be detected in the comparison of the untreated axilla to baseline.
- At t1 & t2(24 and 48h), the treatment with product resulted in significantly decreased scores compared to no treatment.
- At t1 & t2 (24 and 48h), the treatment with product resulted in significantly decreased scores compared to baseline.

The results of this controlled study substantiated the deodorizing efficacy of the product based upon the statistical evidence