

Global Sensory

Date of report: 24/06/2020

**Project: Project Swift - UK****Market: UK****Segment: Low Tar**

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## Background

In the UK market the derogation for characterising menthol flavours ended on 20<sup>th</sup> May 2020 due to EUTPD regulations. Characterising flavours are those that have a clearly noticeable smell or taste other than tobacco before and during consumption.

JTI recently introduced a new version of Benson & Hedges Dual, Benson & Hedges Blue Dual, Sterling Dual and Sovereign Dual – each version with ‘new’ as descriptor in the brand name and in KS format. Although characterising flavours in the blend/cigarette are prohibited, a menthol impression while and after smoking has been reported.

This project is part of the broader ‘Swift’ project as the same was observed in various markets: Portugal, France, Italy, Slovenia and BeNeLux amongst others.

Research questions in scope:

- Are there significant differences between post- and pre-EUTPD versions?
- What are the main sensorial differences between these versions, with focus on smell, taste and smoking experience?
- Could a smell or taste of menthol or other flavour distinct from tobacco be detected?

Please note that

- all pre-EUTPD versions do have a crushball. The capsule was crushed just before starting the product evaluation as the smoking experience with crushed ball was of particular interest. From previous evaluations we do know that the aroma of the crushed capsule only migrates after a few minutes, thus smell before smoking of the crushball versions reflects the smell of the cigarette rather than the crushball flavour.
- the format for B&H Superkings Blue Dual and Sterling Dual Superkings Capsule is different to their post-EUTPD SKU equivalent (KS). Direct comparisons are influenced by format.
- the filter type for Sovereign Dual changed from mono filter to Holobore filter.

## Conclusion

Each post-EUTPD version shows a completely different smell profile compared to its pre-EUTPD counterpart. The post-EUTPD products are not described by any tobacco related smell attributes such as 'hay like' representing Virginia tobaccos – a common descriptor for the pre-EUTPD versions. Post-EUTPD versions are clearly described by fruity, sourish, alcohol and citrus/tropical like notes in smell.

Also taste wise a fruity impression is noticeable; furthermore each post-EUTPD product is described by a **menthol taste** impression and evokes a **cooling effect** – even though less intense compared to its pre-EUTPD counterpart.

'Cooling effect' and 'menthol taste' are clearly noticeable for post-EUTPD versions which is also confirmed by measured laboratory data (menthol in cigarette and menthol in smoke).

## Additional Findings

Post-EUTPD versions show increased filter firmness and burn quicker than pre-EUTPD versions (with the only exception of B&H New Blue Dual).

## Versions

Version	B&H Dual (pre-EUTPD)	B&H New Dual (post-EUTPD)	B&H Superkings Blue Dual (pre-EUTPD)	B&H New Blue Dual (post-EUTPD)	Sterling Dual Superkings Capsule (pre-EUTPD)	Sterling New Dual (post-EUTPD)	Sovereign Dual (pre-EUTPD)	Sovereign New Dual (post-EUTPD)
<b>Brand</b>	Benson & Hedges	Benson & Hedges	Benson & Hedges	Benson & Hedges	Sterling	Sterling	Sovereign	Sovereign
<b>Country of Sale</b>	UK (before May 2020)	UK (as of May 2020)	UK (before May 2020)	UK (as of May 2020)	UK (before May 2020)	UK (as of May 2020)	UK (before May 2020)	UK (as of May 2020)
<b>Analysis No. (Lab)</b>	295662   295670	295666   295674	295663   295671	295667   295675	295660   295668	295665   295673	295661   295669	295664   295672
<b>Format</b>	KS	KS	SKS	KS	SKS	KS	KS	KS
<b>T/N/CO</b> (crushed in case of CB)	8.0 / 0.63 / 8.8	7.8 / 0.67 / 9.5	7.5 / 0.67 / 7.7	7.8 / 0.69 / 9.2	8.9 / 0.77 / 8.3	7.8 / 0.66 / 8.9	8.1 / 0.64 / 8.3	7.5 / 0.63 / 8.3
<b>Menthol in Cigarette [mg/cig]</b>	n / a	1.14	n / a	1.09	0.626	1.12	n / a	1.12
<b>Menthol in Crushball [mg/ball]</b>	3.23	n / a	3.14	n / a	3.16	n / a	3.18	n / a
<b>Menthol in Smoke [mg/cig]</b>	0.64	0.15	0.60	0.16	0.63	0.17	0.60	0.14
<b>Rod Weight [mg]</b>	637.3	*	816.9	*	842.1	600.7	642.2	584.1
<b>Filter</b>	Mono Filter	Mono Filter	Mono Filter	Mono Filter	Mono Filter	Mono Filter	Mono Filter	Holobore Filter
<b>Cigarette Paper</b>	MV	MV	MV	MV	MV	MV	MV	MV
<b>Filter Ventilation [%]</b>	28.8	*	48.5	*	50.3	30.5	27.2	32.6
<b>Puff Number</b> (crushed in case of CB)	5.8	6.0	7.9	5.9	8.4	5.8	5.8	5.8
<b>DP Index</b>	19455	19448	19456	19445	19457	19447	19458	19446
<b>Series</b>	D5485	D5481	D5485	D5481	D5485	D5481	D5485	D5481

\* Due to a low amount of samples, these parameters could not be measured – new samples available and results will be forwarded in due course

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## Report

### Differences B&H New Dual (post-EUTPD) vs. B&H Dual (pre-EUTPD)

The versions are sensory wise distinguishable.

#### Optics before smoking

B&H New Dual (post-EUTPD) has a less visible perforation than B&H Dual (pre-EUTPD).

#### Optics during smoking

B&H New Dual (post-EUPTD) burns quicker than B&H Dual (pre-EUTPD).

#### Feel/touch before smoking

B&H New Dual (post-EUPTD) has a firmer filter and a less hard rod compared to B&H Dual (pre-EUTPD).

#### Smell before smoking

Both B&H Dual versions show a completely different smell profile: While B&H New Dual (post-EUTPD) is described by a fruity, sourish, alcohol and citrus/tropical like smell impression, B&H Dual (pre-EUTPD) is described by hay like. Both have a sweetish smell impression with B&H New Dual being perceived more intense.

#### Taste

B&H New Dual (post-EUTPD) has a fruity taste impression, B&H Dual (pre-EUTPD) has a spearmint taste impression. Both products are described by a menthol taste impression (although B&H post-EUTPD version is perceived less intense compared to the one pre-EUTPD) and a sweet taste impression (with B&H New Dual being perceived more intense).

#### Sensation while smoking

B&H New Dual (post-EUTPD) evokes a less intense cooling effect than B&H Dual (pre-EUTPD).

#### Strength/impact

B&H New Dual (post-EUTPD) evokes less intense trigeminal stimuli than B&H Dual (pre-EUTPD).

(please see attachment for details)

**Differences B&H New Blue Dual (post-EUTPD) vs. B&H Superkings Blue Dual (pre-EUTPD)**

The versions are sensory wise distinguishable.

There are no differences in sensation while smoking and strength/impact.

Optics before smoking

B&H New Blue Dual (post-EUTPD) has a less visible perforation than B&H Superkings Blue Dual (pre-EUTPD).

Optics during smoking

B&H New Blue Dual (post-EUPTD) burns less regularly than B&H Superkings Blue Dual (pre-EUTPD).

Feel/touch before smoking

B&H New Blue Dual (post-EUPTD) has a firmer filter and a harder rod compared to B&H Superkings Blue Dual (pre-EUTPD).

Smell before smoking

Both B&H Dual versions show a completely different smell profile: While B&H New Blue Dual (post-EUTPD) is described by a fruity, sourish, alcohol and citrus/tropical like smell impression, B&H Superkings Blue Dual (pre-EUTPD) is described by hay like. Both have a sweetish smell impression with B&H New Blue Dual being perceived more intense.

Taste

B&H New Blue Dual (post-EUTPD) has a fruity taste impression, B&H Superkings Blue Dual (pre-EUTPD) has a spearmint taste impression. Both products are described by a menthol taste impression (although B&H post-EUTPD version is perceived less intense compared to the one pre-EUTPD).

(please see attachment for details)

**Differences Sterling New Dual (post-EUTPD) vs. Sterling Dual Superkings Capsule (pre-EUTPD)**

The versions are sensory wise distinguishable.

Optics before smoking

Sterling New Dual (post-EUTPD) has a less visible perforation than Sterling Dual Superkings Capsule (pre-EUTPD).

Optics during smoking

Sterling New Dual (post-EUPTD) burns quicker than Sterling Dual Superkings Capsule (pre-EUTPD).

Feel/touch before smoking

Sterling New Dual (post-EUPTD) has a firmer filter and a less hard rod compared to Sterling Dual Superkings Capsule (pre-EUTPD).

Smell before smoking

Both B&H Dual versions show a completely different smell profile: While Sterling New Dual (post-EUTPD) is described by a fruity, sourish, alcohol and citrus/tropical like smell impression, Sterling Dual Superkings Capsule (pre-EUTPD) is described by hay like. Both have a sweetish smell impression with Sterling New Dual being perceived more intense.

Taste

Sterling New Dual (post-EUTPD) has a fruity taste impression, Sterling Dual Superkings Capsule (pre-EUTPD) has a spearmint taste impression. Both products are described by a menthol taste impression (although Sterling post-EUTPD version is perceived less intense compared to the one pre-EUTPD).

Sensation while smoking

Sterling New Dual (post-EUTPD) evokes a less intense cooling effect than Sterling Dual Superkings Capsule (pre-EUTPD).

Strength/impact

Sterling New Dual (post-EUTPD) is easier to draw and higher in impact compared to Sterling Dual Superkings Capsule (pre-EUTPD).

(please see attachment for details)

**Differences Sovereign New Dual (post-EUTPD) vs. Sovereign Dual (pre-EUTPD)**

The versions are sensory wise distinguishable.

Optics before smoking

Sovereign New Dual (post-EUTPD) has a more visible perforation than Sovereign Dual (pre-EUTPD).

Optics during smoking

Sovereign New Dual (post-EUPTD) burns quicker than Sovereign Dual (pre-EUTPD).

Feel/touch before smoking

Sovereign New Dual (post-EUPTD) has a firmer filter and a less hard rod compared to Sovereign Dual (pre-EUTPD).

Smell before smoking

Both Sovereign versions show a completely different smell profile: While Sovereign New Dual (post-EUTPD) is described by a fruity, sourish, alcohol and citrus/tropical like smell impression, Sovereign Dual (pre-EUTPD) is described by hay like. Both have a sweetish smell impression with Sovereign New Dual being perceived more intense.

Taste

Sovereign New Dual (post-EUTPD) has a fruity taste impression, Sovereign Dual (pre-EUTPD) has a spearmint taste impression. Both products are described by a menthol taste impression (although Sovereign post-EUTPD version is perceived less intense compared to the one pre-EUTPD).

Sensation while smoking

Sovereign New Dual (post-EUTPD) evokes a less intense cooling effect than Sovereign Dual (pre-EUTPD).

Strength/impact

Sovereign New Dual (post-EUTPD) is harder to draw, lower in impact and evokes less intense trigeminal stimuli compared to Sovereign Dual (pre-EUTPD).

(please see attachment for details)



## Annex

### I. Results Mean Comparison

#### Differences B&H New Dual (post-EUTPD) vs. B&H Dual (pre-EUTPD)

##### OPTICS BEFORE SMOKING

###### PERFORATION VISIBLE

- A B&H DUAL (PRE-EUTPD)
- B B&H NEW DUAL (POST-EUTPD)

##### OPTICS DURING SMOKING

###### QUICK BURNING

- A B&H NEW DUAL (POST-EUTPD)
- B B&H DUAL (PRE-EUTPD)

##### FEEL/TOUCH BEFORE SMOKING

###### FIRM FILTER

- A B&H NEW DUAL (POST-EUTPD)
- B B&H DUAL (PRE-EUTPD)

###### ROD HARDNESS

- A B&H DUAL (PRE-EUTPD)
- B B&H NEW DUAL (POST-EUTPD)

##### SMELL BEFORE SMOKING

###### FRUITY

- A B&H NEW DUAL (POST-EUTPD)
- B (NONE) B&H DUAL (PRE-EUTPD)

###### SOURISH

- A B&H NEW DUAL (POST-EUTPD)
- B (NONE) B&H DUAL (PRE-EUTPD)

###### ALCOHOL

- A B&H NEW DUAL (POST-EUTPD)
- B (NONE) B&H DUAL (PRE-EUTPD)

###### CITRUS/TROPICAL

- A B&H NEW DUAL (POST-EUTPD)
- B (NONE) B&H DUAL (PRE-EUTPD)

###### SWEETISH

- A B&H NEW DUAL (POST-EUTPD)
- B B&H DUAL (PRE-EUTPD)

###### HAY LIKE

- A B&H DUAL (PRE-EUTPD)
- B (NONE) B&H NEW DUAL (POST-EUTPD)

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**TASTE**

## SWEET

- A B&H NEW DUAL (POST-EUTPD)  
B B&H DUAL (PRE-EUTPD)

## FRUITY

- A B&H NEW DUAL (POST-EUTPD)  
B (NONE) B&H DUAL (PRE-EUTPD)

## MENTHOL

- A B&H DUAL (PRE-EUTPD)  
B B&H NEW DUAL (POST-EUTPD)

## SPEARMINT

- A B&H DUAL (PRE-EUTPD)  
B (NONE) B&H NEW DUAL (POST-EUTPD)

**SENSATION WHILE SMOKING**

## COOLING EFFECT

- A B&H DUAL (PRE-EUTPD)  
B B&H NEW DUAL (POST-EUTPD)

**STRENGTH/IMPACT**

## TRIGEMINAL STIMULI

- A B&H DUAL (PRE-EUTPD)  
B B&H NEW DUAL (POST-EUTPD)

Notes: Versions with the same letter are not significantly different. Letter A states the higher value

**Differences B&H New Blue Dual (post-EUTPD) vs. B&H Superkings Blue Dual (pre-EUTPD)****OPTICS BEFORE SMOKING**

## PERFORATION VISIBLE

- A B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)
- B B&H NEW BLUE DUAL (POST-EUTPD)

**OPTICS DURING SMOKING**

## BURN OFF BEHAVIOUR

- A B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)
- B B&H NEW BLUE DUAL (POST-EUTPD)

**FEEL/TOUCH BEFORE SMOKING**

## FIRM FILTER

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## ROD HARDNESS

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

**SMELL BEFORE SMOKING**

## FRUITY

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B (NONE) B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## SOURISH

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B (NONE) B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## ALCOHOL

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B (NONE) B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## CITRUS/TROPICAL

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B (NONE) B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## SWEETISH

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## HAY LIKE

- A B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)
- B (NONE) B&H NEW BLUE DUAL (POST-EUTPD)

**TASTE**

## FRUITY

- A B&H NEW BLUE DUAL (POST-EUTPD)
- B (NONE) B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)

## MENTHOL

- A B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)
- B B&H NEW BLUE DUAL (POST-EUTPD)

## SPEARMINT

- A B&H SUPERKINGS BLUE DUAL (PRE-EUTPD)
- B (NONE) B&H NEW BLUE DUAL (POST-EUTPD)

Notes: Versions with the same letter are not significantly different. Letter A states the higher value

**Differences Sterling New Dual (post-EUTPD) vs. Sterling Dual Superkings Capsule (pre-EUTPD)****OPTICS BEFORE SMOKING**

## PERFORATION VISIBLE

- A STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)
- B STERLING NEW DUAL (POST-EUTPD)

**OPTICS DURING SMOKING**

## QUICK BURNING

- A STERLING NEW DUAL (POST-EUTPD)
- B STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

**FEEL/TOUCH BEFORE SMOKING**

## FIRM FILTER

- A STERLING NEW DUAL (POST-EUTPD)
- B STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## ROD HARDNESS

- A STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)
- B STERLING NEW DUAL (POST-EUTPD)

**SMELL BEFORE SMOKING**

## FRUITY

- A STERLING NEW DUAL (POST-EUTPD)
- B (NONE) STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## SOURISH

- A STERLING NEW DUAL (POST-EUTPD)
- B (NONE) STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## ALCOHOL

- A STERLING NEW DUAL (POST-EUTPD)
- B (NONE) STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## CITRUS/TROPICAL

- A STERLING NEW DUAL (POST-EUTPD)
- B (NONE) STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## SWEETISH

- A STERLING NEW DUAL (POST-EUTPD)
- B STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## HAY LIKE

- A STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)
- B (NONE) STERLING NEW DUAL (POST-EUTPD)

**TASTE**

## FRUITY

- A STERLING NEW DUAL (POST-EUTPD)
- B (NONE) STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## MENTHOL

- A STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)
- B STERLING NEW DUAL (POST-EUTPD)

## SPEARMINT

- A STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)
- B (NONE) STERLING NEW DUAL (POST-EUTPD)

**SENSATION WHILE SMOKING**

## COOLING EFFECT

- A STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)
- B STERLING NEW DUAL (POST-EUTPD)

**STRENGTH/IMPACT**

## EASE OF DRAWING

- A STERLING NEW DUAL (POST-EUTPD)
- B STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

## IMPACT

- A STERLING NEW DUAL (POST-EUTPD)
- B STERLING DUAL SUPERKINGS CAPSULE (PRE-EUTPD)

Notes: Versions with the same letter are not significantly different. Letter A states the higher value

**Differences Sovereign New Dual (post-EUTPD) vs. Sovereign Dual (pre-EUTPD)****OPTICS BEFORE SMOKING**

## PERFORATION VISIBLE

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B SOVEREIGN DUAL (PRE-EUTPD)

**OPTICS DURING SMOKING**

## QUICK BURNING

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B SOVEREIGN DUAL (PRE-EUTPD)

**FEEL/TOUCH BEFORE SMOKING**

## FIRM FILTER

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B SOVEREIGN DUAL (PRE-EUTPD)

## ROD HARDNESS

- A SOVEREIGN DUAL (PRE-EUTPD)
- B SOVEREIGN NEW DUAL (POST-EUTPD)

**SMELL BEFORE SMOKING**

## FRUITY

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B (NONE) SOVEREIGN DUAL (PRE-EUTPD)

## SOURISH

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B (NONE) SOVEREIGN DUAL (PRE-EUTPD)

## ALCOHOL

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B (NONE) SOVEREIGN DUAL (PRE-EUTPD)

## CITRUS/TROPICAL

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B (NONE) SOVEREIGN DUAL (PRE-EUTPD)

## SWEETISH

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B SOVEREIGN DUAL (PRE-EUTPD)

## HAY LIKE

- A SOVEREIGN DUAL (PRE-EUTPD)
- B (NONE) SOVEREIGN NEW DUAL (POST-EUTPD)

**TASTE**

## FRUITY

- A SOVEREIGN NEW DUAL (POST-EUTPD)
- B (NONE) SOVEREIGN DUAL (PRE-EUTPD)

## MENTHOL

- A SOVEREIGN DUAL (PRE-EUTPD)
- B SOVEREIGN NEW DUAL (POST-EUTPD)

## SPEARMINT

- A SOVEREIGN DUAL (PRE-EUTPD)
- B (NONE) SOVEREIGN NEW DUAL (POST-EUTPD)

**SENSATION WHILE SMOKING**

## COOLING EFFECT

- A SOVEREIGN DUAL (PRE-EUTPD)
- B SOVEREIGN NEW DUAL (POST-EUTPD)

**STRENGTH/IMPACT**

## EASE OF DRAWING

- A SOVEREIGN DUAL (PRE-EUTPD)
- B SOVEREIGN NEW DUAL (POST-EUTPD)

## IMPACT

- A SOVEREIGN DUAL (PRE-EUTPD)
- B SOVEREIGN NEW DUAL (POST-EUTPD)

## TRIGEMINAL STIMULI

- A SOVEREIGN DUAL (PRE-EUTPD)
- B SOVEREIGN NEW DUAL (POST-EUTPD)

Notes: Versions with the same letter are not significantly different. Letter A states the higher value

## II. Descriptive Panel Principles

### Data Collection

Descriptive Panel	The products were assessed by the Descriptive Panel FMC 2 based in Hamburg (Germany) in quantitative design (triplicate). A <b>sensory Descriptive Panel</b> is a team of trained assessors who define the <b>sensory</b> attributes (taste, appearance, texture etc.) which best describe products that are being evaluated. Our <b>panel</b> is trained on a regular basis to ensure continued alignment on descriptors. The panel consists of regular consumers of the respective product category who are working as freelancers and are not employees of IB. We do not share the brand/product data with panellists so that they can provide unbiased data. They are carefully selected based on their high sensorial sensitivity. The evaluation was done by 11 panellists.
Dates	04 – 06 and 09 – 11 June 2020
Approach	<p>Sample presentation is randomised and balanced to avoid order and carry-over effects.</p> <p>The tests were conducted according to ISO standard test requirements<sup>1</sup> (in-house test room and sample serving conditions<sup>2</sup>).</p> <p>Abstinance from smoking and strong tasting food prior to a profiling session: The panel is not allowed to smoke or to consume any other nicotine containing products until at least 60 minutes prior to a panel session. They are also required to not consume taste influencing food like coffee or chewing gums before the session.</p> <p>Each panellist assesses six products within two hours with a neutralisation phase of 15 minutes in between.</p> <p>Non-sparkling water and Matzen<sup>®3</sup> are used for neutralisation between standard products. Menthol related taste impressions are neutralised by eating a small piece of chocolate.</p> <p>The panel does not smoke the whole cigarette, but is asked to take 5 puffs. They can take one more puff to make sure they get all impressions.</p>
Descriptors	<p>This project was conducted utilising the agreed questionnaire defined for this project (see annex III). The panellists assess the presence and intensity of the descriptors via an online questionnaire, utilising a 0 – 100 scale.</p> <p>All descriptors have at least one reference sample, representing one specific scale range, based on consensus. These are presented regularly in the weekly training for calibration.</p>
Sample preparation	All samples are masked by applying correction fluid <sup>4</sup> on the visual brand clues. All samples are packed in clear tubes <sup>5</sup> as single sticks. The tubes contain a random four-digit code. The samples for one day are bundled together and handed out to the panellists. The order of the assessment is fixed for each panellist in the online questionnaire tool. Each step of the preparation process complies with the highest hygiene standards.
Data quality assurance	Projects responding to data quality are run on a regular basis to monitor panel performance.

<sup>1</sup> Sensory analysis - General guidance for the design of test rooms (ISO 8589:2007 + Amd 1:2014); German version EN ISO 8589:2010 + A1:2014

<sup>2</sup> During Covid-19 time, the panel conducted the assessments as “working from home”

<sup>3</sup> An unleavened, unsalted bread

<sup>4</sup> Kores Europe s.r.o.: Waterbased Kores Aqua Correction Fluid (20 ml | Art.-Nr.: 69101)

<sup>5</sup> Sarstedt AG & Co. KG: Tubes (14 ml, 105 x 16.8 mm, PS | Prod.-Nr.: 55.463)

<https://www.sarstedt.com/produkte/labor/reagenz-zentrifugenroehren/roehren/produkt/55.463/>

Sarstedt AG & Co. KG: Push cap, neutral (Prod.-Nr.: 65.793)

<https://www.sarstedt.com/produkte/labor/reagenz-zentrifugenroehren/verschluesse/produkt/65.793/>

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**Data Analysis**

Method	Differences on mean scores are calculated on product basis, utilising two-way ANOVA. Confidence level is 95 % ( $\alpha = 0.05$ ). Only descriptors which show a significant difference between products are shown in the report. Differences are visualised by applying <i>Duncan Grouping</i> as post-hoc-test. Descriptors which have a mean score below the defined perception threshold <sup>6</sup> are not reported. If at least one product is above perception threshold in a particular descriptor, the descriptor is reported and those products without noticeable impression are marked with 'none' next to the Duncan group.
Date	19 June 2020

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<sup>6</sup> Defined area for below defined threshold: 0 – 15 (scale: 0 – 100)

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### III. Customised Questionnaire for Project Swift

Displayed to Panel (German)	Descriptor (English)	Category
Heu (wenig – viel)	Hay like smell	Smell
Süß (kaum – sehr)	Sweetish smell	Smell
Schokolade (wenig – viel)	Chocolate smell	Smell
Harnig (kaum – sehr)	Ammoniac smell	Smell
Gelöschtes Feuer (wenig – viel)	Put out campfire smell	Smell
Menthol (wenig – viel)	Menthol smell	Smell
Spearmint (wenig – viel)	Spearmint smell	Smell
Vanille (wenig – viel)	Vanilla smell	Smell
Zitrus/Tropisch (kaum – sehr)	Citrus/tropical smell	Smell
Alkohol (wenig – viel)	Alcohol smell	Smell
Fruchtig (kaum – sehr)	Fruity smell	Smell
Karamell im Geruch (wenig – viel)	Caramel smell	Smell
Sauer (kaum – sehr)	Sourish smell	Smell
Perforation (undeutlich – deutlich)	Perforation visible	Optic/Haptic
Stranghärte (weich – hart)	Rod hardness	Optic/Haptic
Filterfestigkeit (weich – hart)	Filter firmness	Optic/Haptic
Impact (wenig – viel)	Impact	Strength/Impact
Ziehbarkeit (schwer – leicht)	Ease of drawing	Strength/Impact
Kühler Eindruck (wenig – viel)	Cooling effect	Strength/Impact (Sensation)
Heu (wenig – viel)	Hay like taste	Taste
Holzig (kaum – sehr)	Woody taste	Taste
Bitter (kaum – sehr)	Bitter taste	Taste
Süß (kaum – sehr)	Sweetish taste	Taste
Menthol (wenig – viel)	Menthol taste	Taste
Spearmint (wenig – viel)	Spearmint taste	Taste
Fruchtig (kaum – sehr)	Fruity taste	Taste
Irritation (wenig – viel)	Trigeminal stimuli	Strength/Impact
Abbrandgeschwindigkeit (langsam – schnell)	Burning speed	Optic during smoking
Aschestabilität (instabil – stabil)	Ash stability	Optic during smoking
Gleichmäßigkeit des Abbrandes (unregelmäßig – regelmäßig)	Burn-off behaviour	Optic during smoking