



< SENSORY EVALUATION REPORT >

DORADO DRY BLENDS TO-04796

(STUDY NUMBER: SS_012_2014_04_2)

PROGRAM NAME	PDev						
PROJECT NAME	ZRH Product Development						
WBS NUMBER	J-1002RDA0016						
WORK PACKAGE NAME	ZRH_PDEV_SWP_BLEND AND FLAVOR DEVELOPMENT AND MAINTENANCE FOR ASSESSMENT STUDIES						
EXPERIMENTAL WORK TYPE	<table><tr><td>Exploratory</td><td><input type="checkbox"/></td></tr><tr><td>Developmental</td><td><input checked="" type="checkbox"/></td></tr><tr><td>Regulatory submission</td><td><input type="checkbox"/></td></tr></table>	Exploratory	<input type="checkbox"/>	Developmental	<input checked="" type="checkbox"/>	Regulatory submission	<input type="checkbox"/>
Exploratory	<input type="checkbox"/>						
Developmental	<input checked="" type="checkbox"/>						
Regulatory submission	<input type="checkbox"/>						
OWNER/APPROVER							
AUTHOR	(b) (4)						
DATE OF FINAL APPROVAL	SEE PDIMS REFERENCE						

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2 Abstract

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3 Introduction

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4 Research Question/ Approach

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The obtained sensory profiles were compared and the possible significant differences at 95% confidence level were calculated for the

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5 Methods / Experimental Plan & Results

5.1 Experiment 1

5.1.1 Experiment 1 Plan

5.1.1.1 Design of Experiment

A Quantitative Descriptive Profile (QDP) was performed by a trained panel in blind booths which are controlled into temperature and humidity (20°C +/- 2°; 50% RH +/- 5%).

The products were evaluated in blind conditions. Thus, the panelists were not seeing what they were smoking.

2 sessions were performed in this study from the 7th to the 9th of April 2014.

5.1.1.2 Sample

4 Zürich cigarette products were tested in this study. The [Table 1](#) below shows the product descriptions.

2 products were presented in each session.

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The products were stored in a storage room which is controlled in temperature and humidity (22°C +/- 2°C; 58% RH +/- 5%).

Table 1 : Product descriptions

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5.1.1.3 Procedure

A Quantitative Descriptive Profile (QDP) was carried out. The panelists were asked to evaluate the products or (b) (4). Each of them were rated on a 100mm linear scale from 0 = not at all to 100 = extremely.

The panelists had the possibility to write free comments at the end of the evaluation (see comments in [Table 5](#)).

The marker product (Marlboro Gold) anchored on the scale (see values in [Table 2](#)) was smoked at the beginning of each session to calibrate the panelists.

Between each product, the panelists were asked to rinse their mouth with water, yogurt and bread.

The sample presentation was randomized over the 2 sessions. The presentation plan was reported in [Table 7](#).

5.1.1.4 Instruments and Materials

Zürich prototypes were evaluated with Zürich FPD 4.2 devices. For sensory tests, (b) (4)

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Before the evaluation, the RTD of Zürich cigarettes inserted in the heating device was measured with the SODIM PD1 bench instrument. RTD values were reported in [Table 6](#).

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These evaluations were performed with QDP trained panelists (SEC4_QDP2) in the blind booths at the

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5.1.1.5 Data Processing and Statistical Analysis

The data acquisition was performed on FIZZ sensory software (Biosystemes, 2011).

The statistic data treatments were carried out on XLStat software (Addinsoft, 2014).

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For each product and each attribute descriptive statistics were calculated (average, standard deviation and median).

A two-way analysis of variance (product and panelist effects, type III SS, no interaction, 95% confidence level) was performed to determine if there were significant differences between the products.

Then, means multiple comparisons were calculated with Duncan test with 95% confidence level, to explain these differences.

A one-way analysis of variance (product effect, type III SS, 95% confidence level) was performed on the RTD variable to determine if there were significant differences between the products.

5.1.2 Experiment 1 Results

5.1.2.1 Observations

No special observation was noticed

5.1.2.2 Deviation from Plan

No deviation was recorded

5.1.2.3 Data and Results

Figure 1 : Graphical representation of the sensory profiles of the 4 evaluated products



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(b) (4)



The consolidated data of the [Figure 1](#) were attached in the report as the reference [\[2\]](#) in the chapter 6 "References".

5.1.2.4 Discussion

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Products groups established by Duncan test with 95% confidence level were reported in [Table 4](#).

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6 Conclusions

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7 References



- [1] SS_012_2014_04_2_
Dorado dry blends TC



- [2] Treatments
SS_012_2014_04_2.1



- [3] Fizz questionnaire
regular products

8 Review and approval

This form has been reviewed and approved by:

Name	Function	Justification
(b) (4)	Indicate Job position	Signed as Experimental Report Reviewer
	Sensory Technician Senior Staff Scientist	Signed as Experimental Plan & Report Author
Schaller, Jean-Pierre	Indicate Job position	Signed as Experimental Report Owner/Approver

Refer to the PDIMS Workflow tab to see the names of those who have reviewed and approved this form as well as the proof of review and approval (Dates and electronic sign-off).



9 Abbreviations

Abbreviations		
DoE	:	Design of Experiments
EDMS	:	Electronic Data Management System
LIMS	:	Laboratory Information Management System
PDIMS	:	Product Development Information Management System
SME	:	Subject Matter Expert
SWP	:	Summary Work Package
WP	:	Work Package
ANOVA	:	Analysis Of Variance
Duncan test	:	Means comparison multiple procedures
LIMS	:	Laboratory Information Management System
QDP	:	Quantitative Descriptive Panel
RTD	:	Resistance To Draw
SS	:	Sum of Squares
FPD4.2	:	Functional Product Design 4.2

For complete definition, refer to PMI OPS Glossary and/or PMI RD Glossary



10 Appendix

Table 2 : Descriptive statistics

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**Table 3 : Summary of analysis of variance product effect p-values**

A type III SS analysis of variance with product and panelist effects without interaction was performed with XL Stat Software.

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**Table 4 : Products groups established by Duncan test with 95% confidence level**

Only attributes showing significant differences between the products (ANOVA product effect p-value < 0.05) are presented. Two products owning to the same group are not considered as significantly different.

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Table 5 : Panelists free comments for each product

The panelists had to write at least 5 characters. A striped box signifies that the panelist had not evaluated the product.

(b) (4)





Table 6 : RTD values

Zürich prototypes must have been evaluated between $50 < RTD < 110$.

A striped box signifies that the panelist had not evaluated the product

(b) (4)





Table 7 : Presentation plan

A striped box signifies that the panelist had not evaluated the product.

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