



Smoke Analysis Sub-Group

Technical Report

**2023 Collaborative Study of
CORESTA Monitor 9 (CM9) and the
Evaluation of a Potential Successor,
CORESTA Monitor 10 (CM10)
for the Determination of Test Piece
Weight, TPM, Water, Nicotine,
NFDPM, Carbon Monoxide and
Puff Count obtained in
Mainstream Smoke under ISO 3308
and ISO 20778, respective Health
Canada T-115 Conditions**

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1. Introduction

The CORESTA Smoke Analysis Sub-Group has been given the responsibility to organize the annual testing of the ISO 16055 conform CORESTA Monitor test pieces (tp) to verify its continued suitability as a monitor. The current monitor is CORESTA Monitor 9 (CM9) and the intent is to evaluate the potential successor, CORESTA Monitor 10 (CM10) as new monitor.

The 2023 study was designed:

- to measure the smoke yields of total particulate matter (TPM), nicotine-free dry particulate matter (NFDPM), nicotine, carbon monoxide (CO), and puff count for CM9 and CM10 in the mainstream smoke obtained under ISO 3308 and ISO 20778 smoking regimes, following the related ISO Standards. Since no ISO Standard for the determination of NFDPM under ISO 20778 conditions is applicable, the yields were determined in accordance to Health Canada T-115.
- to determine intra- and inter-laboratory variability for the measured smoke yields for CM9 and CM10 under the different smoking regimes.
- to evaluate CM10 as potential new monitor test piece if supported by the results mentioned above.

2. Organisation

2.1 Participants

In total 34 laboratories participated in the 2023 study and are listed in alphabetical order in Table 1. The laboratories were coded, and the codes shown in this report do not match the list order given in Table 1. Different smoking machines within the same laboratory were assigned separate codes.

Table 1: Participating Laboratories Listed in Alphabetical Order

Company	Country	Company	Country
ASL Analytic Service Laboratory GmbH	Germany	Labstat International Inc.	Canada
BAT Labs Brazil	Brazil	Landewyck Tobacco s.a.	Luxembourg
C.I.T.Montepaz S.A.	Uruguay	Liggett Group	USA
CNRBRO-INCIENSA	Costa Rica	Papierfabrik Wattens GmbH & Co KG	Austria
Filtrona Laboratory	Indonesia	Philip Morris Brasil	Brazil
GCSL	Greece	Philip Morris ČR a.s.	Czech Republic
Godfrey Phillips India Ltd	India	Philip Morris Mexico	Mexico
Imperial Brands/Reemtsma	Germany	Philip Morris R&D	Switzerland
Imperial Tobacco Joure	The Netherlands	PT.HM Sampoerna Tbk - Sukorejo	Indonesia
Imperial Tobacco Polska S.A.	Poland	R.J. Reynolds Tobacco Company	USA
Imperial Tobacco Production Ukraine (ITPU)	Ukraine	SWM intl	France

Company	Country
ITC Limited	India
Japan Tobacco Inc.	Japan
JT International GmbH	Germany
Karelia Tobacco Company Inc.	Greece
KT International S.A.	Bulgaria
KT&G	South Korea

Company	Country
Tabacalera del Este S.A.	Paraguay
Tobacco Institute of Japan	Japan
Tabaqueira E.I.T.	Portugal
Philip Morris Poland	Poland
Philip Morris Turkey	Turkey
Philip Morris Russia	Russia

Table 2 summarises the number of data sets by regime, smoking machine type, and monitor.

Table 2: Number of Data Sets by Monitor, Regime, and Smoking Machine Type

	Linear		Rotary	
	ISO 3308	ISO 20778	ISO 3308	ISO 20778
CM9	11	8	34	13
CM10	12	8	32	12

Table 3 summarises the number and types of smoking machines used.

Table 3: Number of smoking machines

Machine	CM9	CM9	CM10	CM10
	ISO 3308	ISO 20778	ISO 3308	ISO 20778
Linear				
SM450	11	8	12	8
Rotary				
RM20 KIT	1	1	1	.
RM200A	20	6	19	6
RM200A2	4	2	5	2
RM20D	2	1	1	1
RM20H	6	2	6	2
RM20H2	1	1	.	1

2.2 Protocol

Participants were requested to follow the protocol “Annual Study of the CORESTA Monitor Test Pieces CM9 and CM10 2023” (provided in Appendix A) to analyse CM9 and CM10 and to report the seven parameters listed in Table 4.

Table 4: Parameters to be reported

Parameter	Number of replicates	Unit	Code
Conditioned Weight	5	mg/tp	Weight
Total Particulate Matter	5	mg/tp	TPM
Water content (smoke)	5	mg/tp	Water
Smoke Nicotine	5	mg/tp	Nicotine
Nicotine Free Dry Particulate Matter	5	mg/tp	NFDPM
Carbon Monoxide	5	mg/tp	CO
Puff count	5	puff/tp	Puff Ct

Replicates under ISO 3308 consisted of 4 ports each smoked with 5 test pieces (tps) per port on machines equipped with a 44 mm filter pad or a single set of 20 tps on machines equipped with a 92 mm filter pad for a total of 20 tps per port. Replicates under ISO 20778 consisted of 4 ports with 3 tps per port for smoking machines equipped with a 44 mm filter pad or a single set of 10 tps on machines equipped with a 92 mm filter pad for a total of either 12 tps or 10 tps. Replicates for weight consist of 20 tps. CM9 and CM10 tps are smoked with a fixed butt length of 33 mm for both smoking regimes and the smoking parameters listed in the following table:

Table 5: Mainstream smoking regime parameters

Smoking Regime	Puff Volume (mL)	Puff Frequency (s)	Puff Duration (s)	Vent. Blocking (%)
ISO 3308	35	60	2	0
ISO 20778	55	30	2	100

Each participating laboratory bought the CM9 test pieces via Körber Technologies Instruments GmbH or Cerulean and CM10 test pieces were provided directly by the manufacturer.

3. Raw Data

The complete data set is listed in Appendix B and graphs of the data are shown in Appendix C.

4. Statistical Analysis

The statistical evaluation of data for this collaborative study followed the methods provided by ISO 5725-5^[1]. This procedure does not involve testing for outliers, but, instead, employs robust procedures which are not overly influenced by the presence of outliers.

Z-scores were also calculated to assess laboratory performance and to aid laboratory accreditation. The Z-scores were calculated with both linear and rotary smoking machines together. Z-scores were calculated in basic conformance with ISO 13528 and used Algorithm A to estimate the assigned values and standard deviations for proficiency assessment.

^[1] “ISO 5725-5:1998: Accuracy (trueness and precision) of measurement methods and results – Part 5: Alternative method for the determination of the precision of a standard measurement method.

4.1 Repeatability and Reproducibility Estimation

Repeatability and reproducibility limits are calculated for both smoking regimes for each parameter. The results are summarized in Tables 6 and 7, with all machines grouped together and with linear or rotary machines treated separately.

Table 6: Summary results (all machines)

Monitor	Analyte	Mean	N Labs	sr	r	r %	sR	R	R%
CM9	Weight	937,6	45	3,84	10,8	1,1 %	6,50	18,2	1,9 %
CM10	Weight	964,3	44	3,26	9,12	0,9 %	6,18	17,3	1,8 %
ISO 3308 (Non-Intense)									
CM9	TPM	17,0	45	0,274	0,767	4,5 %	0,396	1,11	6,5 %
CM10	TPM	14,9	44	0,299	0,836	5,6 %	0,541	1,51	10,2 %
CM9	Water	1,84	45	0,111	0,31	16,9 %	0,321	0,899	49,0 %
CM10	Water	1,73	44	0,123	0,345	20,0 %	0,287	0,802	46,5 %
CM9	Nicotine	1,47	45	0,0276	0,0772	5,3 %	0,0536	0,150	10,2 %
CM10	Nicotine	1,24	44	0,0351	0,0983	7,9 %	0,0711	0,199	16,0 %
CM9	NFDPM	13,7	45	0,224	0,628	4,6 %	0,439	1,23	9,0 %
CM10	NFDPM	11,9	44	0,254	0,711	6,0 %	0,565	1,58	13,3 %
CM9	CO	13,3	44	0,286	0,802	6,0 %	0,573	1,60	12,1 %
CM10	CO	12,2	43	0,268	0,752	6,1 %	0,565	1,58	12,9 %
CM9	Puff Ct	7,60	45	0,102	0,284	3,7 %	0,329	0,921	12,1 %
CM10	Puff Ct	9,81	44	0,132	0,37	3,8 %	0,409	1,15	11,7 %
ISO 20778 (Intense)									
CM9	TPM	42,7	21	0,606	1,7	4,0 %	3,24	9,08	21,2 %
CM10	TPM	36,7	20	0,631	1,77	4,8 %	3,37	9,43	25,7 %
CM9	Water	9,94	21	0,412	1,15	11,6 %	1,36	3,80	38,2 %
CM10	Water	9,06	20	0,423	1,19	13,1 %	1,31	3,68	40,6 %
CM9	Nicotine	3,09	21	0,049	0,137	4,4 %	0,13	0,364	11,8 %
CM10	Nicotine	2,45	20	0,0619	0,173	7,1 %	0,162	0,455	18,6 %
CM9	NFDPM	29,7	21	0,555	1,55	5,2 %	2,00	5,60	18,9 %
CM10	NFDPM	25,1	20	0,609	1,71	6,8 %	2,01	5,63	22,5 %
CM9	CO	24,8	21	0,414	1,16	4,7 %	0,835	2,34	9,4 %
CM10	CO	23,5	20	0,355	0,995	4,2 %	0,755	2,12	9,0 %
CM9	Puff Ct	10,9	21	0,139	0,388	3,6 %	0,382	1,07	9,8 %
CM10	Puff Ct	14,9	20	0,234	0,654	4,4 %	0,537	1,50	10,1 %

Table 7: Summary results (machines treated separately)

Test Piece	Analyte	Type	Mean	N Labs	sr	r	r (%)	sR	R	R (%)
CM9	Weight	Linear	935,1	11	5,16	14,5	1,5 %	7,55	21,1	2,3 %
CM10	Weight	Linear	963,7	12	3,56	9,95	1,0 %	6,71	18,8	2,0 %
CM9	Weight	Rotary	938,5	34	3,43	9,59	1,0 %	5,36	15,0	1,6 %
CM10	Weight	Rotary	964,6	32	3,13	8,77	0,9 %	5,96	16,7	1,7 %
ISO 3308 (Non-Intense)										
CM9	TPM	Linear	17,2	11	0,348	0,974	5,7 %	0,493	1,38	8,0 %
CM10	TPM	Linear	15,2	12	0,401	1,12	7,4 %	0,606	1,70	11,2 %
CM9	TPM	Rotary	16,9	34	0,251	0,702	4,1 %	0,341	0,954	5,6 %
CM10	TPM	Rotary	14,7	32	0,269	0,754	5,1 %	0,503	1,41	9,6 %
CM9	Water	Linear	1,47	11	0,117	0,328	22,3 %	0,156	0,436	29,6 %
CM10	Water	Linear	1,44	12	0,176	0,492	34,3 %	0,231	0,646	45,0 %
CM9	Water	Rotary	1,96	34	0,108	0,303	15,4 %	0,216	0,604	30,8 %
CM10	Water	Rotary	1,83	32	0,111	0,312	17,0 %	0,202	0,566	30,9 %
CM9	Nicotine	Linear	1,47	11	0,0296	0,083	5,6 %	0,0596	0,167	11,3 %
CM10	Nicotine	Linear	1,27	12	0,0377	0,106	8,3 %	0,0781	0,219	17,2 %
CM9	Nicotine	Rotary	1,47	34	0,027	0,0756	5,2 %	0,0525	0,147	10,0 %
CM10	Nicotine	Rotary	1,24	32	0,0339	0,095	7,7 %	0,0672	0,188	15,2 %
CM9	NFDPM	Linear	14,2	11	0,278	0,778	5,5 %	0,45	1,26	8,9 %
CM10	NFDPM	Linear	12,5	12	0,333	0,933	7,5 %	0,448	1,25	10,1 %
CM9	NFDPM	Rotary	13,5	34	0,21	0,588	4,3 %	0,313	0,875	6,5 %
CM10	NFDPM	Rotary	11,7	32	0,225	0,629	5,4 %	0,377	1,05	9,0 %
CM9	CO	Linear	12,8	10	0,385	1,08	8,4 %	0,572	1,60	12,5 %
CM10	CO	Linear	11,8	11	0,387	1,08	9,2 %	0,6	1,68	14,3 %
CM9	CO	Rotary	13,5	34	0,255	0,713	5,3 %	0,459	1,28	9,5 %
CM10	CO	Rotary	12,4	32	0,248	0,695	5,6 %	0,448	1,26	10,1 %
CM9	Puff Ct	Linear	7,91	11	0,109	0,304	3,8 %	0,304	0,851	10,8 %
CM10	Puff fCt	Linear	10,2	12	0,175	0,49	4,8 %	0,393	1,10	10,8 %
CM9	Puff Ct	Rotary	7,50	34	0,0985	0,276	3,7 %	0,247	0,692	9,2 %
CM10	Puff Ct	Rotary	9,68	32	0,117	0,329	3,4 %	0,322	0,903	9,3 %
ISO 20778 (Intense)										
CM9	TPM	Linear	45,8	8	0,938	2,63	5,7 %	1,43	4	8,8 %
CM10	TPM	Linear	39,6	8	0,982	2,75	6,9 %	2,22	6,22	15,7 %
CM9	TPM	Rotary	40,7	13	0,481	1,35	3,3 %	1,28	3,58	8,8 %
CM10	TPM	Rotary	34,8	12	0,526	1,47	4,2 %	1,96	5,50	15,8 %
CM9	Water	Linear	11,3	8	0,620	1,74	15,3 %	0,846	2,37	20,9 %
CM10	Water	Linear	10,3	8	0,569	1,59	15,4 %	1,14	3,20	30,9 %

Test Piece	Analyte	Type	Mean	N Labs	sr	r	r (%)	sR	R	R (%)
CM9	Water	Rotary	9,12	13	0,338	0,947	10,4 %	0,502	1,41	15,4 %
CM10	Water	Rotary	8,31	12	0,333	0,934	11,2 %	0,621	1,74	20,9 %
CM9	Nicotine	Linear	3,12	8	0,0428	0,12	3,8 %	0,0963	0,270	8,6 %
CM10	Nicotine	Linear	2,48	8	0,0750	0,21	8,5 %	0,161	0,450	18,2 %
CM9	Nicotine	Rotary	3,07	13	0,0534	0,15	4,9 %	0,15	0,421	13,7 %
CM10	Nicotine	Rotary	2,42	12	0,0550	0,154	6,4 %	0,166	0,465	19,2 %
CM9	NFDPM	Linear	31,3	8	0,656	1,84	5,9 %	1,44	4,02	12,9 %
CM10	NFDPM	Linear	26,7	8	0,921	2,58	9,7 %	1,49	4,17	15,6 %
CM9	NFDPM	Rotary	28,6	13	0,467	1,31	4,6 %	0,982	2,75	9,6 %
CM10	NFDPM	Rotary	24,0	12	0,442	1,24	5,2 %	1,44	4,03	16,8 %
CM9	CO	Linear	24,5	8	0,658	1,84	7,5 %	0,984	2,76	11,3 %
CM10	CO	Linear	23,3	8	0,526	1,47	6,3 %	0,944	2,64	11,4 %
CM9	CO	Rotary	25,1	13	0,326	0,913	3,6 %	0,825	2,31	9,2 %
CM10	CO	Rotary	23,6	12	0,308	0,863	3,7 %	0,71	1,99	8,4 %
CM9	Puff Ct	Linear	11,2	8	0,145	0,406	3,6 %	0,331	0,926	8,3 %
CM10	Puff Ct	Linear	15,1	8	0,293	0,821	5,4 %	0,541	1,51	10,0 %
CM9	Puff Ct	Rotary	10,7	13	0,131	0,368	3,4 %	0,362	1,01	9,5 %
CM10	Puff Ct	Rotary	14,8	12	0,186	0,519	3,5 %	0,616	1,72	11,6 %

4.2 Z-Scores

Z-scores are not, strictly speaking, an aspect of the CM9 and CM10 evaluation, but, instead, are provided as a courtesy to the laboratories to assist in their accreditation. The values were calculated in general conformance with ISO 13528. Z-scores are given in standard deviation units from the assigned value (“average”), and the assigned values and standard deviations for proficiency assessment were estimated using Algorithm A. It is expected that most of the z-scores should fall within the range of ± 2 . Values such that $2 \leq |z| < 3$ should be interpreted as a warning, and laboratories having values with $|z| \geq 3$ should be treated as an “action signal” to investigate laboratory performance. The z-scores are given in Tables 8 and 9. Graphs of the z-scores are given in Appendix D. Generally, the labs performed similarly and there were only six z-scores that exceeded three in magnitude.

Table 8: Z-scores for CO, Nicotine, Puff count, and TPM

	CO		Nicotine		Puff Count		TPM	
LabNo	CM10	CM9	CM10	CM9	CM10	CM9	CM10	CM9
	ISO 3308 (Non-Intense)							
Mean	12,24	13,3	1,244	1,467	9,813	7,601	14,86	16,98
StdDev	0,5113	0,5122	0,0638	0,0476	0,3917	0,316	0,4703	0,3111
1R	0,69	0,95	0,81	0,96	-0,31	-0,16	0,60	0,92
2L	0,81	0,15	-1,10	-1,28	1,03	1,33	-0,45	-0,24
2R	1,08	0,89	-0,49	-1,35	-0,32	-0,42	0,60	0,45
3L	0,37	-0,88	1,65	0,65	0,06	-0,21	1,37	0,48
4R	-0,02	-0,15	0,59	-0,37	0,63	0,42	1,04	-0,23
5R	–	-0,46	–	0,52	–	-0,01	–	0,65
6R	0,35	-1,08	0,52	0,02	0,00	0,24	1,03	0,14
7R	0,02	0,23	-0,18	-0,59	-0,56	-0,71	-0,03	0,48
8L	–	–	0,45	-0,54	-0,39	-0,52	0,99	-0,12
9R	0,84	1,01	-1,24	-0,08	-0,28	0,10	-1,31	-0,76
10R	0,22	0,59	-0,12	0,60	3,57	2,89	-0,81	0,16
11R	-0,73	0,59	0,16	0,39	3,70	3,23	-1,02	-0,34
12R	-0,17	-0,33	-0,24	0,55	-0,63	-0,79	-0,55	-0,90
13R	1,13	0,71	-0,71	0,59	-0,78	-0,76	-1,03	-0,58
14R	0,94	0,81	-0,40	0,60	-0,46	-0,69	-0,56	0,13
15L	-1,02	–	0,66	–	1,08	–	0,69	–
16R	1,02	1,76	-0,65	1,19	0,56	0,28	-0,03	1,90
17L	–	-0,70	–	0,59	–	0,50	–	-0,23
18L	-1,35	0,23	-0,16	0,87	0,64	0,85	-0,02	1,81
19R	0,00	-0,16	-0,34	-0,22	-1,36	-1,43	-0,77	-0,72
20R	0,16	2,67	0,66	-0,76	0,87	1,01	2,24	3,75
21R	0,38	0,92	-0,71	-0,55	-0,86	-0,74	-0,96	-0,47
22R	-0,13	0,13	-0,23	-0,43	-0,15	-0,27	-0,38	-0,93
23R	0,82	0,74	2,29	1,02	-1,67	-1,01	0,04	-1,03
24R	0,94	0,81	2,36	1,19	-1,31	-1,08	0,34	-0,84
25R	0,67	0,27	-0,60	-2,27	-0,95	-1,26	0,34	-0,28
26R	-0,19	1,16	-1,18	-1,84	-0,73	-1,55	-0,24	0,09
27R	-0,27	-0,50	-1,34	-0,61	0,53	-0,30	0,20	-0,22
28R	0,49	-0,21	-0,84	-0,78	-0,01	-0,62	0,27	-0,38
29R	-0,56	0,15	0,35	-0,69	-0,94	0,23	-1,77	-0,52
30L	-0,62	-0,78	1,87	1,60	0,57	0,76	1,75	2,39
31R	0,95	0,60	1,16	2,33	0,03	0,20	-0,54	-0,56

	CO		Nicotine		Puff Count		TPM	
LabNo	CM10	CM9	CM10	CM9	CM10	CM9	CM10	CM9
32R	-1,29	-0,67	-0,63	-0,85	0,78	0,50	-1,65	-0,98
33L	-1,00	-1,43	-0,57	-0,54	2,99	2,55	-0,69	1,02
34R	-0,42	-0,29	0,59	0,66	-0,52	-0,67	-0,24	-1,10
35R	1,84	1,16	0,89	1,55	-0,22	0,01	0,45	2,02
36L	-0,67	-1,33	1,10	-0,09	1,13	1,31	2,23	1,46
36R	-2,11	-2,27	-1,14	-1,08	-1,12	-1,17	-1,97	-1,71
37L	-1,89	-2,68	-0,36	-2,29	2,63	1,77	-0,05	-2,65
38L	-1,99	-1,62	-0,21	0,25	1,23	1,37	1,21	-0,05
39R	0,82	–	-1,59	–	-0,75	–	-1,83	–
40L	-1,93	–	-0,30	–	0,30	–	0,01	–
41R	–	0,63	–	-0,30	–	0,06	–	-1,53
42R	-0,94	-0,50	1,09	0,86	-0,58	-0,41	0,14	-0,10
43L	-0,75	-1,32	1,49	0,94	1,12	1,08	1,10	1,22
44R	1,21	0,53	-1,06	-1,02	-1,04	-1,21	0,11	0,07
45R	0,71	0,24	-0,22	-0,54	-0,80	-0,34	0,64	1,06
46R	–	-1,22	–	0,23	–	0,04	–	0,22
	ISO 20778 (Intense)							
Mean	23,5	24,85	2,445	3,089	14,94	10,9	36,7	42,72
StdDev	0,6929	0,7476	0,1527	0,1222	0,4952	0,3616	3,321	3,196
1R	0,30	0,91	0,49	1,37	-0,09	0,04	-0,59	-0,44
2L	1,45	0,80	-0,83	-0,62	0,60	0,78	0,65	0,64
2R	1,19	0,24	-1,18	-1,64	-0,35	-0,56	-0,58	-0,73
3L	0,48	0,11	0,74	0,46	-0,70	-0,29	0,66	0,67
4R	0,10	-0,41	0,78	-0,37	0,29	0,12	0,05	-0,61
5R	0,18	-0,12	0,51	0,18	0,13	0,33	0,15	-0,19
9R	0,55	0,76	-1,39	-0,96	-1,10	-0,91	-1,59	-1,46
15L	-1,40	–	0,53	–	0,14	–	0,54	–
16R	1,73	2,38	0,02	1,09	0,52	-0,13	-0,54	-0,16
17L	–	-0,36	–	1,22	–	-0,13	–	0,75
18L	-1,98	0,23	-0,67	0,24	0,04	0,53	0,50	1,18
19R	0,09	-0,98	-0,70	-0,39	-1,89	-1,80	-0,76	-0,73
20R	-0,94	1,69	1,10	-0,17	0,91	0,54	0,19	0,71
28R	0,29	0,01	-1,11	-1,70	-0,62	-1,43	-0,60	-0,78
30L	-0,23	–	0,75	–	-0,80	–	1,44	–
32R	-1,14	-1,03	-0,48	-0,10	1,47	0,51	-1,22	-0,86
33L	-0,50	-1,30	-0,69	-0,37	2,96	2,58	0,14	0,95

	CO		Nicotine		Puff Count		TPM	
LabNo	CM10	CM9	CM10	CM9	CM10	CM9	CM10	CM9
35R	–	0,78	–	0,63	–	-0,30	–	-0,68
36L	-0,36	-0,74	0,37	0,72	0,71	0,92	1,58	1,47
36R	0,94	0,76	-0,82	-1,42	-2,29	-2,51	-0,96	-0,99
38L	–	-2,38	–	-0,22	–	0,91	–	0,68
42R	-0,71	-0,29	1,09	0,94	-0,49	-0,71	-0,52	-0,70
43L	-0,28	-0,88	1,48	0,77	0,85	1,28	1,47	1,27

Table 9: Z-scores for NFDPM, water and monitor weight

	NFDPM		Water		Weight#	
LabNo	CM10	CM9	CM10	CM9	CM10	CM9
	ISO 3308 (Non-intense)					
Mean	11,89	13,69	1,727	1,835	964,3	937,6
StdDev	0,5173	0,3901	0,2645	0,3054	5,446	5,522
1R	-0,08	0,00	1,01	0,75	0,31	0,50
2L	0,44	0,97	-1,40	-1,33	0,68	1,77
2R	-0,37	-0,67	1,92	1,48	0,02	1,41
3L	1,38	1,25	-0,67	-1,25	-0,04	-1,03
4R	0,98	0,34	-0,22	-0,66	-0,22	1,17
5R	–	0,55	–	-0,15	–	0,42
6R	0,36	-0,29	0,99	0,48	0,17	0,75
7R	-0,29	-0,17	0,54	0,76	0,13	0,43
8L	1,20	0,56	-0,69	-0,80	-0,70	-0,59
9R	-0,32	-0,23	-1,40	-0,51	-1,46	-0,10
10R	-0,97	-0,71	0,46	0,93	1,24	2,38
11R	-0,92	-0,57	-0,08	0,28	1,15	2,09
12R	-0,66	-1,10	0,36	0,36	0,67	0,29
13R	-0,87	-0,54	0,04	-0,04	0,83	0,30
14R	-0,53	-0,11	0,14	0,13	1,03	0,23
15L	1,25	–	-1,39	–	-0,89	–
16R	-0,59	0,30	1,24	1,32	2,33	-0,04
17L	–	0,81	–	-1,40	–	-1,04
18L	1,03	2,61	-2,03	-1,67	-0,68	-1,58
19R	-0,89	-1,04	0,46	0,59	-0,31	-1,92
20R	1,41	2,10	1,05	1,21	-0,25	-2,34
21R	-0,91	-0,73	0,24	0,49	0,62	0,62
22R	-0,52	-0,96	0,38	0,31	1,01	0,63
23R	-0,15	-0,55	-0,19	-0,55	-1,75	-0,05

LabNo	NFDPM		Water		Weight#	
	CM10	CM9	CM10	CM9	CM10	CM9
24R	0,08	-0,65	-0,12	-0,25	-1,79	-0,02
25R	0,07	0,08	0,61	-0,07	-0,02	-1,31
26R	0,08	-0,15	-0,31	0,54	-0,20	-1,33
27R	-0,48	-0,96	1,61	1,06	-0,53	0,58
28R	-0,16	-0,86	0,99	0,78	-0,68	0,50
29R	-1,46	-0,59	-0,40	0,30	0,66	3,08
30L	1,70	2,45	-0,67	-0,99	-1,31	-0,62
31R	-1,15	-1,68	0,99	1,18	0,30	0,12
32R	-1,31	-0,94	-0,25	0,29	1,06	-0,71
33L	0,28	1,74	-1,65	-1,14	1,09	-0,50
34R	-0,66	-1,14	0,71	0,19	0,06	-0,67
35R	-0,07	0,45	0,71	1,20	-0,70	-0,41
36L	1,69	1,62	0,37	-0,61	-1,72	-1,34
36R	-1,09	-1,05	-1,10	-0,27	0,35	-0,06
37L	0,36	-0,65	-0,71	-1,56	-0,16	-1,06
38L	1,68	0,59	-1,08	-0,89	1,07	0,51
39R	-1,35	–	-0,22	–	0,75	–
40L	0,52	–	-0,94	–	0,43	–
41R	–	1,28	–	-3,19	–	0,05
42R	0,24	0,09	0,48	0,59	-2,59	-0,15
43L	1,75	1,95	-1,82	-1,44	0,90	1,10
44R	0,00	-0,40	0,46	0,71	-0,35	-0,37
45R	0,07	0,44	1,07	0,56	-2,00	-0,06
46R	–	-0,15	–	0,34	–	0,30
	ISO 20778 (Intense)					
Mean	25,07	29,68	9,063	9,941	–	–
StdDev	1,936	1,939	1,259	1,306	–	–
1R	-0,75	-0,33	-0,36	-0,73	–	–
2L	0,66	0,60	0,88	0,74	–	–
2R	-0,48	-0,62	-0,56	-0,71	–	–
3L	0,40	0,61	1,12	0,69	–	–
4R	0,19	-0,35	-0,17	-0,93	–	–
5R	0,25	0,06	0,04	-0,56	–	–
9R	-1,70	-2,08	-1,34	-0,39	–	–
15L	0,88	–	0,08	–	–	–
16R	-0,67	-0,31	-0,29	-0,01	–	–

LabNo	NFDPM		Water		Weight [#]	
	CM10	CM9	CM10	CM9	CM10	CM9
17L	–	0,02	–	1,69	–	–
18L	0,42	0,76	0,86	1,75	–	–
19R	-0,76	-0,99	-0,66	-0,27	–	–
20R	0,91	1,46	-0,94	-0,39	–	–
28R	-0,63	-0,72	-0,39	-0,67	–	–
30L	0,60	–	2,86	–	–	–
32R	-1,29	-1,05	-1,08	-0,54	–	–
33L	0,26	0,86	0,15	1,10	–	–
35R	–	-0,59	–	-0,84	–	–
36L	1,66	1,81	1,65	0,85	–	–
36R	-1,02	-0,68	-0,78	-1,28	–	–
38L	–	0,39	–	1,12	–	–
42R	-0,45	-0,63	-0,73	-0,86	–	–
43L	1,71	1,60	1,16	0,68	–	–

Weight was tested in conjunction with ISO 3308 smoking, so it is listed with the results of that smoking regime, though it is not a smoke variable.

5. Comparison to Prior Collaborative Studies

This section compares the results of this study with previous collaborative studies of CM9 under the ISO 3308 and ISO 20778 smoking regimes and test piece weight. Keep in mind that the number of smoking machines, smoking machine types and participants varies to some degree throughout the studies.

Tables 10-12 list the averages, repeatability limits, and reproducibility limits for the test pieces.

Table 10: Averages, repeatability, reproducibility of CORESTA collaborative studies from 2018 to 2023 for CM9 and CM10 test pieces under ISO 3308 smoking conditions

ISO 3308	Year	2018	2019	2020	2021	2022	2023	2023
	Test piece	CM9	CM9	CM9	CM9	CM9	CM9	CM10
Average (mg/tp or puffs per tp)	TPM	16,98	16,98	16,95	16,9	17,01	17,0	14,9
	Water	1,68	1,87	1,76	1,72	1,77	1,84	1,73
	Nicotine	1,48	1,44	1,45	1,45	1,46	1,47	1,24
	NFDPM	13,82	13,71	13,73	13,71	13,78	13,7	11,9
	CO	13,06	13,32	13,12	13,02	13,27	13,3	12,2
	Puff	7,76	7,55	7,66	7,62	7,66	7,60	9,81

ISO 3308	Year	2018	2019	2020	2021	2022	2023	2023
	Test piece	CM9	CM9	CM9	CM9	CM9	CM9	CM10
Repeatability (r)	TPM	0,96	0,9	0,77	0,83	0,63	0,77	0,84
	Water	0,45	0,32	0,34	0,31	0,32	0,31	0,35
	Nicotine	0,095	0,094	0,064	0,075	0,067	0,077	0,098
	NFDPM	0,8	0,8	0,6	0,71	0,53	0,63	0,71
	CO	1,03	0,97	0,69	0,82	0,67	0,80	0,75
	Puff	0,35	0,26	0,3	0,31	0,28	0,28	0,37
Reproducibility (R)	TPM	1,56	1,36	1,3	1,33	1,17	1,11	1,51
	Water	0,91	0,86	0,73	1	0,93	0,90	0,80
	Nicotine	0,185	0,214	0,13	0,151	0,118	0,150	0,199
	NFDPM	1,42	1,46	1,34	1,64	1,35	1,23	1,58
	CO	1,79	1,95	1,84	1,9	1,63	1,60	1,58
	Puff	0,94	0,61	0,76	0,79	0,88	0,92	1,15

Table 11: Averages, repeatability, reproducibility of CORESTA collaborative studies from 2018 to 2023 for CM9 and CM10 test pieces under ISO 20778/HC T-115 smoking conditions

ISO 20778	Year	2018	2019	2020	2021	2022	2023	2023
	Test piece	CM9	CM9	CM9	CM9	CM9	CM9	CM10
Average (mg/tp or puffs per tp)	TPM	42,84	42,6	44,15	43,68	43,32	42,7	36,7
	Water	10,19	9,79	10,83	10,81	10,45	9,94	9,06
	Nicotine	3,11	3,08	3,11	3,1	3,08	3,09	2,45
	NFDPM	29,44	29,25	30,21	29,75	29,79	29,7	25,1
	CO	24,71	24,65	24,46	24,46	24,6	24,8	23,5
	Puff	10,97	10,87	10,86	10,8	10,82	10,9	14,9
Repeatability (r)	TPM	1,79	1,63	2,19	2,15	2,06	1,70	1,77
	Water	1,28	1,17	1,32	1,27	1,22	1,15	1,19
	Nicotine	0,179	0,126	0,118	0,155	0,143	0,137	0,173
	NFDPM	1,62	1,55	1,4	1,46	1,46	1,55	1,71
	CO	1,25	1,02	1,24	1,37	1,23	1,16	0,995
	Puff	0,5	0,42	0,4	0,35	0,45	0,388	0,654
Reproducibility (R)	TPM	8,93	7,37	8,23	10,06	8,45	9,08	9,43
	Water	3,71	4,33	4,48	5,05	4,29	3,80	3,68
	Nicotine	0,275	0,235	0,388	0,445	0,376	0,364	0,455
	NFDPM	4,72	4,32	4,74	5,43	5,09	5,60	5,63
	CO	2,46	2,11	2,19	2	2,95	2,34	2,12
	Puff	1,1	0,84	0,70	0,95	1,03	1,07	1,50

Table 12: Average weight data, repeatability and reproducibility for test pieces CM9

Study	CM9 2018	CM9 2019	CM9 2020	CM9 2021	CM9 2022	CM9 2023	CM10 2023
Weight (mg/tp)	943,2	941,49	942,5	938,5	939,4	937,6	964,3
Repeatability (r)	13,3	9,53	9,74	9,28	9,67	10,8	9,12
Reproducibility (R)	17,9	15,83	17,48	17,58	15,93	18,2	17,3

For CM9, the averages and the estimated variabilities are generally comparable to those seen in prior years. CM10 has comparable variability to that seen with CM9 which supports the use of CM10 as a laboratory monitor. CM10 has generally lower smoke yields and higher puff counts than CM9, but that does not preclude its use as a monitor test piece.

6. Conclusion

This study has examined the performance of CM9 and CM10 under the ISO 3308 and ISO 20778 smoking regimes to determine if CM9 continues to be suitable as a monitor test piece and if CM10 performs adequately to be suitable as a monitor test piece. The performance of the CM9 monitor in this testing was in line with its historical performance and CM9 continues to be a suitable smoke analysis monitor. CM10 generally has lower yield and higher puff count than CM9 but has generally similar variability. Since variability is the key factor in suitability as a monitor, CM10 performs adequately to serve as a monitor test piece.

APPENDIX A – Experimental Protocol



SA-340-CTR_Study-
Protocol-2023.pdf

APPENDIX B – Complete Data Set

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
01AR	Rotary	ISO3308	CM9	1	936,0	16,96	1,98	1,520	13,46	13,45	7,4
01AR	Rotary	ISO3308	CM9	2	942,0	17,63	2,18	1,562	13,89	14,23	7,6
01AR	Rotary	ISO3308	CM9	3	939,0	17,60	2,20	1,526	13,87	14,04	7,6
01AR	Rotary	ISO3308	CM9	4	940,0	16,94	2,04	1,497	13,40	13,55	7,5
01AR	Rotary	ISO3308	CM9	5	945,0	17,21	1,92	1,460	13,83	13,67	7,6
02AL	Linear	ISO3308	CM9	1	958,0	17,14	1,64	1,399	14,10	13,37	8,1
02AL	Linear	ISO3308	CM9	2	947,0	16,83	1,40	1,408	14,02	13,09	8,1
02AL	Linear	ISO3308	CM9	3	952,0	16,66	1,31	1,405	13,95	13,52	7,9
02AL	Linear	ISO3308	CM9	4	939,0	16,92	1,39	1,403	14,13	13,57	7,9
02AL	Linear	ISO3308	CM9	5	941,0	17,00	1,42	1,418	14,16	13,35	8,1
02AR	Rotary	ISO3308	CM9	1	948,0	17,32	2,33	1,433	13,56	13,80	7,6
02AR	Rotary	ISO3308	CM9	2	947,0	17,04	2,26	1,371	13,41	14,08	7,4
02AR	Rotary	ISO3308	CM9	3	943,0	16,94	2,24	1,362	13,34	13,79	7,3
02AR	Rotary	ISO3308	CM9	4	946,0	16,76	2,31	1,380	13,07	13,29	7,5
02AR	Rotary	ISO3308	CM9	5	943,0	17,55	2,30	1,468	13,78	13,83	7,6
03AL	Linear	ISO3308	CM9	1	927,4	16,99	1,39	1,494	14,11	12,67	7,4
03AL	Linear	ISO3308	CM9	2	934,4	17,28	1,43	1,501	14,35	12,92	7,5
03AL	Linear	ISO3308	CM9	3	933,0	17,60	1,73	1,517	14,36	12,43	7,6
03AL	Linear	ISO3308	CM9	4	932,0	16,57	1,37	1,495	13,70	12,85	7,7
03AL	Linear	ISO3308	CM9	5	933,0	17,22	1,36	1,485	14,38	13,41	7,5
04AR	Rotary	ISO3308	CM9	1	938,5	16,88	1,58	1,415	13,89	13,45	7,6
04AR	Rotary	ISO3308	CM9	2	944,0	17,19	1,75	1,488	13,95	13,50	7,8

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
04AR	Rotary	ISO3308	CM9	3	951,0	16,52	1,54	1,433	13,55	12,47	7,8
04AR	Rotary	ISO3308	CM9	4	943,0	16,65	1,60	1,425	13,62	12,94	7,7
04AR	Rotary	ISO3308	CM9	5	944,0	17,31	1,70	1,488	14,12	13,78	7,8
05AR	Rotary	ISO3308	CM9	1	942,4	17,56	1,84	1,502	14,22	13,27	7,6
05AR	Rotary	ISO3308	CM9	2	942,2	16,74	1,68	1,430	13,63	12,78	7,6
05AR	Rotary	ISO3308	CM9	3	940,6	16,79	1,69	1,491	13,61	13,00	7,5
05AR	Rotary	ISO3308	CM9	4	939,6	17,45	1,93	1,523	14,00	12,92	7,7
05AR	Rotary	ISO3308	CM9	5	935,0	17,38	1,80	1,514	14,07	13,37	7,6
06AR	Rotary	ISO3308	CM9	1	942,7	17,05	1,86	1,462	13,73	12,72	7,7
06AR	Rotary	ISO3308	CM9	2	933,2	16,50	1,94	1,423	13,14	12,12	7,5
06AR	Rotary	ISO3308	CM9	3	950,0	16,97	2,04	1,475	13,46	12,83	7,8
06AR	Rotary	ISO3308	CM9	4	942,1	17,45	2,14	1,491	13,82	13,16	7,8
06AR	Rotary	ISO3308	CM9	5	940,7	17,16	1,93	1,489	13,74	12,91	7,6
07AR	Rotary	ISO3308	CM9	1	935,0	16,81	2,00	1,430	13,38	13,36	7,3
07AR	Rotary	ISO3308	CM9	2	935,0	17,53	2,28	1,479	13,77	13,43	7,4
07AR	Rotary	ISO3308	CM9	3	950,0	17,09	1,88	1,432	13,78	13,53	7,5
07AR	Rotary	ISO3308	CM9	4	940,0	17,32	2,10	1,435	13,79	13,53	7,5
07AR	Rotary	ISO3308	CM9	5	940,0	16,90	2,07	1,420	13,41	13,25	7,3
08AL	Linear	ISO3308	CM9	1	936,3	16,92	1,64	1,432	13,84	–	7,5
08AL	Linear	ISO3308	CM9	2	937,3	16,93	1,63	1,470	13,83	–	7,6
08AL	Linear	ISO3308	CM9	3	930,0	16,94	1,57	1,445	13,93	–	7,4
08AL	Linear	ISO3308	CM9	4	931,8	17,02	1,60	1,438	13,98	–	7,4
08AL	Linear	ISO3308	CM9	5	936,5	16,93	1,53	1,423	13,98	–	7,5
09AR	Rotary	ISO3308	CM9	1	936,3	16,50	1,65	1,462	13,39	13,50	7,6

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
09AR	Rotary	ISO3308	CM9	2	936,9	16,69	1,66	1,460	13,57	13,78	7,7
09AR	Rotary	ISO3308	CM9	3	936,4	16,49	1,69	1,456	13,34	13,67	7,5
09AR	Rotary	ISO3308	CM9	4	937,7	17,02	1,67	1,488	13,86	14,01	7,7
09AR	Rotary	ISO3308	CM9	5	937,9	17,03	1,73	1,452	13,85	14,15	7,6
10AR	Rotary	ISO3308	CM9	1	956,1	17,32	2,06	1,522	13,74	13,67	8,8
10AR	Rotary	ISO3308	CM9	2	949,1	17,00	2,05	1,523	13,42	13,71	8,5
10AR	Rotary	ISO3308	CM9	3	948,5	17,12	2,25	1,497	13,37	13,41	8,5
10AR	Rotary	ISO3308	CM9	4	951,7	16,74	2,08	1,466	13,19	13,62	8,4
10AR	Rotary	ISO3308	CM9	5	948,3	16,98	2,16	1,471	13,35	13,63	8,4
11AR	Rotary	ISO3308	CM9	1	950,7	16,96	1,80	1,500	13,66	13,88	8,6
11AR	Rotary	ISO3308	CM9	2	951,0	16,51	1,81	1,453	13,25	13,17	8,6
11AR	Rotary	ISO3308	CM9	3	948,3	17,00	1,90	1,507	13,59	13,63	9,0
11AR	Rotary	ISO3308	CM9	4	947,0	16,74	2,07	1,464	13,21	13,49	8,3
11AR	Rotary	ISO3308	CM9	5	948,7	17,16	2,03	1,505	13,63	13,87	8,7
12AR	Rotary	ISO3308	CM9	1	945,0	16,73	1,91	1,521	13,30	12,84	7,3
12AR	Rotary	ISO3308	CM9	2	940,0	16,97	1,92	1,511	13,54	13,30	7,5
12AR	Rotary	ISO3308	CM9	3	937,5	16,75	2,00	1,479	13,28	13,60	7,4
12AR	Rotary	ISO3308	CM9	4	939,1	16,36	1,81	1,459	13,09	12,72	7,3
12AR	Rotary	ISO3308	CM9	5	934,6	16,70	2,09	1,497	13,11	13,22	7,2
13AR	Rotary	ISO3308	CM9	1	940,9	16,83	1,94	1,516	13,38	13,13	7,4
13AR	Rotary	ISO3308	CM9	2	939,4	16,79	1,78	1,528	13,48	13,91	7,3
13AR	Rotary	ISO3308	CM9	3	939,4	16,72	1,88	1,468	13,37	13,76	7,3
13AR	Rotary	ISO3308	CM9	4	938,2	16,88	1,81	1,480	13,59	13,56	7,4
13AR	Rotary	ISO3308	CM9	5	938,6	16,79	1,71	1,484	13,59	13,98	7,4

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
14AR	Rotary	ISO3308	CM9	1	939,1	17,06	1,96	1,528	13,57	13,82	7,4
14AR	Rotary	ISO3308	CM9	2	941,0	17,10	1,75	1,533	13,82	13,60	7,4
14AR	Rotary	ISO3308	CM9	3	939,4	17,17	1,94	1,492	13,73	13,64	7,5
14AR	Rotary	ISO3308	CM9	4	937,9	16,80	1,86	1,459	13,48	13,53	7,3
14AR	Rotary	ISO3308	CM9	5	937,0	16,97	1,86	1,468	13,64	13,99	7,4
16AR	Rotary	ISO3308	CM9	1	943,0	18,04	2,45	1,520	14,07	15,31	7,9
16AR	Rotary	ISO3308	CM9	2	936,0	17,61	2,07	1,530	14,01	14,13	7,6
16AR	Rotary	ISO3308	CM9	3	935,0	17,62	2,30	1,530	13,79	13,97	7,6
16AR	Rotary	ISO3308	CM9	4	936,0	16,84	2,04	1,520	13,28	13,28	7,5
16AR	Rotary	ISO3308	CM9	5	937,0	17,75	2,33	1,520	13,90	14,34	7,8
17AL	Linear	ISO3308	CM9	1	935,7	16,88	1,30	1,493	14,09	12,77	7,8
17AL	Linear	ISO3308	CM9	2	930,5	17,00	1,42	1,479	14,09	12,96	7,6
17AL	Linear	ISO3308	CM9	3	931,2	17,08	1,50	1,518	14,06	12,81	7,8
17AL	Linear	ISO3308	CM9	4	931,7	16,67	1,30	1,471	13,90	12,58	7,8
17AL	Linear	ISO3308	CM9	5	930,2	16,93	1,51	1,518	13,90	13,61	7,8
18AL	Linear	ISO3308	CM9	1	930,9	17,59	1,35	1,551	14,69	13,57	7,9
18AL	Linear	ISO3308	CM9	2	929,0	17,27	1,30	1,497	14,47	13,31	7,9
18AL	Linear	ISO3308	CM9	3	923,2	17,17	1,22	1,459	14,49	12,96	7,8
18AL	Linear	ISO3308	CM9	4	927,3	17,66	1,38	1,493	14,79	13,40	7,8
18AL	Linear	ISO3308	CM9	5	934,2	18,05	1,39	1,543	15,12	13,88	8,0
19AR	Rotary	ISO3308	CM9	1	929,8	16,85	1,99	1,438	13,42	13,33	7,2
19AR	Rotary	ISO3308	CM9	2	921,0	16,63	1,99	1,478	13,17	13,09	7,2
19AR	Rotary	ISO3308	CM9	3	926,0	16,51	1,95	1,472	13,09	13,37	7,1
19AR	Rotary	ISO3308	CM9	4	933,1	17,01	2,05	1,424	13,54	13,37	7,1

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
19AR	Rotary	ISO3308	CM9	5	925,3	16,78	2,09	1,473	13,22	12,95	7,2
20AR	Rotary	ISO3308	CM9	1	932,9	17,80	2,01	1,347	14,44	14,15	8,0
20AR	Rotary	ISO3308	CM9	2	921,7	17,63	2,58	1,415	13,63	14,43	7,8
20AR	Rotary	ISO3308	CM9	3	921,6	18,97	2,81	1,423	14,73	15,02	7,9
20AR	Rotary	ISO3308	CM9	4	918,8	18,16	1,84	1,546	14,78	15,43	7,9
20AR	Rotary	ISO3308	CM9	5	928,6	18,18	1,79	1,424	14,97	14,33	8,1
21AR	Rotary	ISO3308	CM9	1	941,2	16,86	1,98	1,424	13,46	14,04	7,4
21AR	Rotary	ISO3308	CM9	2	935,5	16,68	1,91	1,428	13,34	13,51	7,4
21AR	Rotary	ISO3308	CM9	3	939,6	16,79	1,94	1,428	13,42	13,72	7,3
21AR	Rotary	ISO3308	CM9	4	941,8	16,72	2,03	1,454	13,24	13,82	7,3
21AR	Rotary	ISO3308	CM9	5	947,0	17,12	2,07	1,472	13,58	13,79	7,5
22AR	Rotary	ISO3308	CM9	1	935,5	16,93	1,96	1,449	13,52	13,51	7,4
22AR	Rotary	ISO3308	CM9	2	946,9	16,49	1,79	1,439	13,26	13,48	7,6
22AR	Rotary	ISO3308	CM9	3	940,3	16,75	1,99	1,453	13,31	13,31	7,5
22AR	Rotary	ISO3308	CM9	4	941,7	16,51	1,89	1,409	13,21	13,26	7,5
22AR	Rotary	ISO3308	CM9	5	941,2	16,78	2,02	1,484	13,28	13,29	7,6
23AR	Rotary	ISO3308	CM9	1	937,3	16,70	1,64	1,510	13,55	13,70	7,3
23AR	Rotary	ISO3308	CM9	2	937,8	16,60	1,66	1,530	13,41	13,80	7,3
23AR	Rotary	ISO3308	CM9	3	935,0	16,70	1,66	1,520	13,52	13,60	7,2
23AR	Rotary	ISO3308	CM9	4	936,5	16,60	1,71	1,500	13,39	13,70	7,3
23AR	Rotary	ISO3308	CM9	5	940,0	16,70	1,67	1,520	13,51	13,60	7,3
24AR	Rotary	ISO3308	CM9	1	939,0	16,80	1,70	1,540	13,56	13,90	7,3
24AR	Rotary	ISO3308	CM9	2	937,5	16,80	1,78	1,530	13,49	13,70	7,2
24AR	Rotary	ISO3308	CM9	3	937,5	16,60	1,68	1,530	13,39	13,70	7,2

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
24AR	Rotary	ISO3308	CM9	4	936,1	16,70	1,86	1,510	13,33	13,80	7,3
24AR	Rotary	ISO3308	CM9	5	937,5	16,70	1,77	1,510	13,43	13,50	7,3
25AR	Rotary	ISO3308	CM9	1	930,5	16,77	1,85	1,350	13,57	13,45	7,2
25AR	Rotary	ISO3308	CM9	2	930,5	17,04	1,94	1,331	13,77	13,35	7,2
25AR	Rotary	ISO3308	CM9	3	930,5	16,93	1,80	1,374	13,76	13,30	7,2
25AR	Rotary	ISO3308	CM9	4	930,0	16,85	1,79	1,381	13,68	13,55	7,2
25AR	Rotary	ISO3308	CM9	5	930,5	16,88	1,69	1,361	13,83	13,57	7,2
26AR	Rotary	ISO3308	CM9	1	931,0	17,15	1,96	1,397	13,79	14,09	7,2
26AR	Rotary	ISO3308	CM9	2	930,0	17,14	2,08	1,382	13,68	14,03	7,2
26AR	Rotary	ISO3308	CM9	3	930,5	16,94	1,90	1,399	13,64	13,43	7,1
26AR	Rotary	ISO3308	CM9	4	930,0	16,68	1,86	1,365	13,46	14,11	7,1
26AR	Rotary	ISO3308	CM9	5	930,0	17,14	2,20	1,355	13,59	13,82	7,1
27AR	Rotary	ISO3308	CM9	1	941,0	16,85	2,21	1,440	13,20	13,18	7,5
27AR	Rotary	ISO3308	CM9	2	940,0	16,69	2,12	1,400	13,17	12,85	7,6
27AR	Rotary	ISO3308	CM9	3	941,0	17,01	2,04	1,450	13,52	13,05	7,4
27AR	Rotary	ISO3308	CM9	4	941,0	17,06	2,29	1,450	13,32	13,21	7,6
27AR	Rotary	ISO3308	CM9	5	941,0	16,95	2,13	1,450	13,37	12,94	7,4
28AR	Rotary	ISO3308	CM9	1	942,0	17,06	2,04	1,440	13,58	13,11	7,5
28AR	Rotary	ISO3308	CM9	2	942,0	16,85	2,08	1,440	13,33	13,32	7,5
28AR	Rotary	ISO3308	CM9	3	939,0	16,81	2,12	1,430	13,26	13,11	7,4
28AR	Rotary	ISO3308	CM9	4	939,0	16,82	2,05	1,400	13,37	13,39	7,2
28AR	Rotary	ISO3308	CM9	5	940,0	16,77	2,08	1,440	13,25	13,06	7,4
29AR	Rotary	ISO3308	CM9	1	954,0	16,85	1,95	1,441	13,46	13,21	7,7
29AR	Rotary	ISO3308	CM9	2	955,0	16,62	1,94	1,427	13,25	13,24	7,6

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
29AR	Rotary	ISO3308	CM9	3	955,0	16,79	1,88	1,415	13,50	13,27	7,6
29AR	Rotary	ISO3308	CM9	4	956,0	16,93	1,87	1,438	13,62	13,66	7,7
29AR	Rotary	ISO3308	CM9	5	953,0	16,91	1,99	1,450	13,48	13,53	7,8
30AL	Linear	ISO3308	CM9	1	931,0	18,45	1,77	1,593	15,09	13,00	7,9
30AL	Linear	ISO3308	CM9	2	936,0	17,73	1,78	1,550	14,40	13,10	7,9
30AL	Linear	ISO3308	CM9	3	936,0	17,35	1,12	1,515	14,72	12,80	7,7
30AL	Linear	ISO3308	CM9	4	939,0	17,28	1,41	1,505	14,36	12,68	8,0
30AL	Linear	ISO3308	CM9	5	929,0	17,83	1,59	1,555	14,68	12,95	7,7
31AR	Rotary	ISO3308	CM9	1	939,9	16,74	2,17	1,605	12,97	13,36	7,6
31AR	Rotary	ISO3308	CM9	2	942,8	16,93	2,17	1,575	13,18	13,67	7,8
31AR	Rotary	ISO3308	CM9	3	937,3	16,60	2,20	1,565	12,84	13,59	7,6
31AR	Rotary	ISO3308	CM9	4	937,6	16,89	2,23	1,568	13,09	13,62	7,7
31AR	Rotary	ISO3308	CM9	5	933,7	16,88	2,20	1,577	13,11	13,81	7,6
32AR	Rotary	ISO3308	CM9	1	934,4	16,62	1,82	1,432	13,37	12,99	7,8
32AR	Rotary	ISO3308	CM9	2	933,6	16,89	2,02	1,439	13,43	13,12	7,7
32AR	Rotary	ISO3308	CM9	3	936,8	16,93	1,87	1,414	13,65	13,43	7,8
32AR	Rotary	ISO3308	CM9	4	933,8	16,42	1,94	1,456	13,02	12,76	7,7
32AR	Rotary	ISO3308	CM9	5	930,0	16,52	1,97	1,392	13,16	12,49	7,8
33AL	Linear	ISO3308	CM9	1	939,6	17,70	1,52	1,447	14,73	13,40	8,5
33AL	Linear	ISO3308	CM9	2	933,8	16,81	1,40	1,401	14,01	11,81	8,2
33AL	Linear	ISO3308	CM9	3	930,7	17,30	1,49	1,439	14,37	12,36	8,4
33AL	Linear	ISO3308	CM9	4	937,2	17,26	1,45	1,463	14,35	12,29	8,4
33AL	Linear	ISO3308	CM9	5	933,0	17,44	1,58	1,458	14,39	12,99	8,6
34AR	Rotary	ISO3308	CM9	1	926,4	16,45	1,82	1,480	13,15	13,06	7,2

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
34AR	Rotary	ISO3308	CM9	2	932,1	16,46	1,83	1,507	13,12	13,08	7,4
34AR	Rotary	ISO3308	CM9	3	940,2	16,75	1,91	1,519	13,32	13,26	7,5
34AR	Rotary	ISO3308	CM9	4	936,8	16,51	1,95	1,482	13,08	13,04	7,5
34AR	Rotary	ISO3308	CM9	5	934,0	17,02	1,95	1,506	13,56	13,33	7,4
35AR	Rotary	ISO3308	CM9	1	938,3	17,96	2,32	1,550	14,10	14,00	7,7
35AR	Rotary	ISO3308	CM9	2	945,3	17,67	1,97	1,545	14,16	14,00	7,8
35AR	Rotary	ISO3308	CM9	3	926,6	17,04	2,03	1,480	13,53	13,90	7,5
35AR	Rotary	ISO3308	CM9	4	933,1	17,71	2,53	1,546	13,63	14,00	7,6
35AR	Rotary	ISO3308	CM9	5	933,5	17,66	2,16	1,585	13,92	13,60	7,5
36AL	Linear	ISO3308	CM9	1	934,1	17,36	1,69	1,451	14,22	12,26	8,0
36AL	Linear	ISO3308	CM9	2	940,5	17,01	1,60	1,459	13,96	11,94	8,0
36AL	Linear	ISO3308	CM9	3	923,3	17,77	1,73	1,480	14,56	12,82	7,8
36AL	Linear	ISO3308	CM9	4	920,5	17,16	1,62	1,453	14,09	13,14	8,1
36AL	Linear	ISO3308	CM9	5	932,8	17,87	1,60	1,471	14,80	12,95	8,2
36AR	Rotary	ISO3308	CM9	1	939,8	16,47	1,75	1,401	13,32	12,44	7,3
36AR	Rotary	ISO3308	CM9	2	934,7	16,73	1,81	1,411	13,51	12,17	7,2
36AR	Rotary	ISO3308	CM9	3	931,1	16,16	1,63	1,451	13,08	11,72	7,1
36AR	Rotary	ISO3308	CM9	4	938,6	16,43	1,90	1,365	13,17	11,98	7,2
36AR	Rotary	ISO3308	CM9	5	942,3	16,45	1,67	1,452	13,33	12,38	7,4
37AL	Linear	ISO3308	CM9	1	931,5	16,04	1,27	1,436	13,34	11,95	8,0
37AL	Linear	ISO3308	CM9	2	936,3	16,04	1,31	1,377	13,36	12,19	8,2
37AL	Linear	ISO3308	CM9	3	937,1	16,32	1,21	1,345	13,76	11,57	8,0
37AL	Linear	ISO3308	CM9	4	925,4	15,99	1,54	1,251	13,20	12,18	8,5
37AL	Linear	ISO3308	CM9	5	928,7	16,41	1,48	1,382	13,55	11,76	8,1

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
38AL	Linear	ISO3308	CM9	1	941,6	16,55	1,54	1,515	13,50	13,13	8,1
38AL	Linear	ISO3308	CM9	2	933,9	17,70	1,69	1,448	14,56	12,30	8,0
38AL	Linear	ISO3308	CM9	3	950,2	16,18	1,56	1,460	13,16	12,18	8,0
38AL	Linear	ISO3308	CM9	4	936,2	16,63	1,38	1,453	13,80	12,15	8,0
38AL	Linear	ISO3308	CM9	5	940,4	17,78	1,66	1,520	14,60	12,63	8,1
41AR	Rotary	ISO3308	CM9	1	937,0	16,50	1,16	1,444	13,90	13,64	7,6
41AR	Rotary	ISO3308	CM9	2	944,6	16,27	0,59	1,442	14,23	13,64	7,5
41AR	Rotary	ISO3308	CM9	3	944,7	16,12	0,54	1,414	14,17	13,55	7,7
41AR	Rotary	ISO3308	CM9	4	933,7	17,12	1,36	1,547	14,21	13,68	8,0
41AR	Rotary	ISO3308	CM9	5	929,5	16,52	0,66	1,418	14,44	13,63	7,4
42AR	Rotary	ISO3308	CM9	1	934,0	16,73	2,08	1,517	13,13	12,98	7,5
42AR	Rotary	ISO3308	CM9	2	923,0	16,85	1,92	1,508	13,43	12,96	7,4
42AR	Rotary	ISO3308	CM9	3	928,0	16,86	1,85	1,509	13,51	12,84	7,4
42AR	Rotary	ISO3308	CM9	4	947,0	17,50	2,24	1,505	13,75	13,34	7,7
42AR	Rotary	ISO3308	CM9	5	952,0	16,81	1,99	1,501	14,82	13,12	7,4
43AL	Linear	ISO3308	CM9	1	934,8	17,68	1,58	1,558	14,55	12,48	7,9
43AL	Linear	ISO3308	CM9	2	943,7	17,55	1,42	1,593	14,53	12,60	7,9
43AL	Linear	ISO3308	CM9	3	946,0	16,65	1,26	1,505	13,89	12,25	7,9
43AL	Linear	ISO3308	CM9	4	951,9	17,65	1,30	1,340	15,01	12,54	8,0
43AL	Linear	ISO3308	CM9	5	942,0	17,28	1,42	1,565	14,29	13,27	7,9
44AR	Rotary	ISO3308	CM9	1	935,5	17,00	2,04	1,399	13,56	13,41	7,3
44AR	Rotary	ISO3308	CM9	2	938,0	17,05	1,82	1,381	13,85	13,19	7,2
44AR	Rotary	ISO3308	CM9	3	934,5	16,91	1,83	1,435	13,65	13,61	7,3
44AR	Rotary	ISO3308	CM9	4	935,0	17,03	2,32	1,412	13,30	13,84	7,1

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
44AR	Rotary	ISO3308	CM9	5	935,0	17,03	2,25	1,466	13,32	13,82	7,2
45AR	Rotary	ISO3308	CM9	1	938,5	17,28	1,94	1,459	13,88	13,35	7,5
45AR	Rotary	ISO3308	CM9	2	937,0	17,46	2,19	1,450	13,82	13,38	7,6
45AR	Rotary	ISO3308	CM9	3	938,5	17,23	1,94	1,435	13,86	13,53	7,4
45AR	Rotary	ISO3308	CM9	4	937,0	17,32	1,96	1,452	13,91	13,63	7,5
45AR	Rotary	ISO3308	CM9	5	935,5	17,26	2,00	1,413	13,84	13,23	7,5
46AR	Rotary	ISO3308	CM9	1	941,5	16,98	2,16	1,455	13,37	12,10	7,6
46AR	Rotary	ISO3308	CM9	2	944,5	16,60	1,73	1,497	13,37	12,28	7,7
46AR	Rotary	ISO3308	CM9	3	938,5	17,53	2,01	1,480	14,04	12,86	7,7
46AR	Rotary	ISO3308	CM9	4	931,5	16,64	1,80	1,456	13,38	13,51	7,5
46AR	Rotary	ISO3308	CM9	5	940,5	17,50	2,00	1,504	14,00	12,63	7,7
01AR	Rotary	ISO20778	CM9	1	–	40,56	8,77	3,254	28,54	25,88	11,0
01AR	Rotary	ISO20778	CM9	2	–	40,20	8,50	3,236	28,46	25,50	10,9
01AR	Rotary	ISO20778	CM9	3	–	42,16	9,70	3,263	29,21	26,02	10,9
01AR	Rotary	ISO20778	CM9	4	–	41,17	9,38	3,231	28,56	25,24	10,8
01AR	Rotary	ISO20778	CM9	5	–	42,40	8,62	3,296	30,49	25,04	10,9
02AL	Linear	ISO20778	CM9	1	–	44,67	11,22	3,000	30,45	25,72	11,1
02AL	Linear	ISO20778	CM9	2	–	45,00	10,87	3,019	31,11	25,59	11,1
02AL	Linear	ISO20778	CM9	3	–	44,88	10,96	3,028	30,89	25,55	11,3
02AL	Linear	ISO20778	CM9	4	–	44,87	10,61	3,011	31,26	25,15	11,2
02AL	Linear	ISO20778	CM9	5	–	44,37	10,88	3,007	30,49	25,26	11,2
02AR	Rotary	ISO20778	CM9	1	–	39,74	9,07	2,890	27,79	24,73	10,7
02AR	Rotary	ISO20778	CM9	2	–	40,66	8,95	2,886	28,82	25,05	10,6
02AR	Rotary	ISO20778	CM9	3	–	40,14	8,88	2,869	28,39	25,00	10,7

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
02AR	Rotary	ISO20778	CM9	4	–	40,89	9,36	2,923	28,62	25,10	10,8
02AR	Rotary	ISO20778	CM9	5	–	40,44	8,82	2,878	28,75	25,30	10,7
03AL	Linear	ISO20778	CM9	1	–	43,31	10,15	3,105	30,06	24,23	10,7
03AL	Linear	ISO20778	CM9	2	–	44,35	10,76	3,137	30,46	25,35	10,9
03AL	Linear	ISO20778	CM9	3	–	44,61	10,54	3,128	30,94	24,22	10,6
03AL	Linear	ISO20778	CM9	4	–	46,47	11,44	3,212	31,83	25,27	11,0
03AL	Linear	ISO20778	CM9	5	–	45,49	11,31	3,142	31,03	25,63	10,8
04AR	Rotary	ISO20778	CM9	1	–	41,00	9,01	2,969	29,02	24,66	10,8
04AR	Rotary	ISO20778	CM9	2	–	40,50	8,89	3,000	28,62	24,53	11,0
04AR	Rotary	ISO20778	CM9	3	–	40,52	8,31	3,140	29,08	24,29	10,8
04AR	Rotary	ISO20778	CM9	4	–	40,70	8,82	3,006	28,87	24,53	11,1
04AR	Rotary	ISO20778	CM9	5	–	41,19	8,63	3,106	29,46	24,74	11,0
05AR	Rotary	ISO20778	CM9	1	–	42,08	9,35	3,109	29,62	24,61	11,1
05AR	Rotary	ISO20778	CM9	2	–	42,37	9,50	3,113	29,76	24,89	11,0
05AR	Rotary	ISO20778	CM9	3	–	41,91	8,79	3,111	30,01	24,80	11,0
09AR	Rotary	ISO20778	CM9	1	–	37,99	9,46	2,924	25,60	25,61	10,6
09AR	Rotary	ISO20778	CM9	2	–	38,27	9,45	2,968	25,85	25,64	10,4
09AR	Rotary	ISO20778	CM9	3	–	38,02	9,52	2,969	25,53	25,03	10,6
09AR	Rotary	ISO20778	CM9	4	–	38,12	9,33	3,005	25,78	25,44	10,7
09AR	Rotary	ISO20778	CM9	5	–	37,89	9,40	2,995	25,50	25,42	10,6
16AR	Rotary	ISO20778	CM9	1	–	42,17	9,80	3,120	29,25	26,97	11,2
16AR	Rotary	ISO20778	CM9	2	–	41,37	9,71	3,110	28,56	27,19	10,9
16AR	Rotary	ISO20778	CM9	3	–	43,30	10,19	3,330	29,78	26,57	10,8
16AR	Rotary	ISO20778	CM9	4	–	42,07	9,94	3,280	28,85	25,96	10,5

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
16AR	Rotary	ISO20778	CM9	5	–	42,18	10,00	3,270	28,91	26,50	10,9
17AL	Linear	ISO20778	CM9	1	–	45,73	13,39	3,276	29,07	25,34	10,9
17AL	Linear	ISO20778	CM9	2	–	44,80	11,78	3,219	29,80	24,58	11,0
17AL	Linear	ISO20778	CM9	3	–	44,77	11,14	3,217	30,41	23,35	10,7
17AL	Linear	ISO20778	CM9	4	–	45,46	12,51	3,275	29,68	25,20	11,0
17AL	Linear	ISO20778	CM9	5	–	44,78	11,90	3,206	29,68	24,44	10,7
18AL	Linear	ISO20778	CM9	1	–	45,33	12,18	3,137	30,00	24,08	11,0
18AL	Linear	ISO20778	CM9	2	–	46,11	11,75	3,092	31,27	25,67	11,3
18AL	Linear	ISO20778	CM9	3	–	46,98	12,04	3,040	31,91	25,32	11,1
18AL	Linear	ISO20778	CM9	4	–	47,32	12,85	3,068	31,40	25,53	11,1
18AL	Linear	ISO20778	CM9	5	–	46,71	12,30	3,253	31,16	24,53	11,0
19AR	Rotary	ISO20778	CM9	1	–	39,95	9,37	3,034	27,55	24,62	10,1
19AR	Rotary	ISO20778	CM9	2	–	40,06	9,14	2,940	27,98	23,92	10,2
19AR	Rotary	ISO20778	CM9	3	–	40,51	9,69	2,971	27,85	24,12	10,3
19AR	Rotary	ISO20778	CM9	4	–	40,45	9,61	3,151	27,69	24,20	10,3
19AR	Rotary	ISO20778	CM9	5	–	40,95	10,13	3,113	27,71	23,77	10,3
20AR	Rotary	ISO20778	CM9	1	–	44,26	9,11	2,889	32,25	25,87	11,1
20AR	Rotary	ISO20778	CM9	2	–	45,79	9,88	3,091	32,81	26,52	11,2
20AR	Rotary	ISO20778	CM9	3	–	45,20	9,82	2,947	32,44	25,77	11,3
20AR	Rotary	ISO20778	CM9	4	–	43,58	9,06	3,273	31,25	25,74	10,8
20AR	Rotary	ISO20778	CM9	5	–	46,16	9,26	3,141	33,75	26,71	11,1
28AR	Rotary	ISO20778	CM9	1	–	40,19	9,20	2,840	28,16	24,69	10,3
28AR	Rotary	ISO20778	CM9	2	–	39,94	9,15	2,840	27,95	24,75	10,4
28AR	Rotary	ISO20778	CM9	3	–	40,42	9,11	2,870	28,44	25,19	10,2

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
28AR	Rotary	ISO20778	CM9	4	–	40,25	9,12	2,925	28,21	24,82	10,4
28AR	Rotary	ISO20778	CM9	5	–	40,35	8,78	2,930	28,65	24,88	10,6
32AR	Rotary	ISO20778	CM9	1	–	40,35	9,38	3,115	27,86	24,14	11,2
32AR	Rotary	ISO20778	CM9	2	–	40,11	9,09	3,060	27,96	24,18	11,3
32AR	Rotary	ISO20778	CM9	3	–	39,47	9,13	3,059	27,29	23,83	11,0
32AR	Rotary	ISO20778	CM9	4	–	40,30	9,59	3,138	27,58	24,31	11,0
32AR	Rotary	ISO20778	CM9	5	–	39,59	9,00	3,011	27,58	23,97	11,0
33AL	Linear	ISO20778	CM9	1	–	46,21	11,22	3,061	31,93	24,08	12,0
33AL	Linear	ISO20778	CM9	2	–	45,43	11,16	3,028	31,24	23,37	11,9
33AL	Linear	ISO20778	CM9	3	–	45,68	11,40	2,982	31,30	23,11	11,9
33AL	Linear	ISO20778	CM9	4	–	46,02	11,63	3,107	31,28	24,19	11,9
33AL	Linear	ISO20778	CM9	5	–	45,48	11,49	3,042	30,95	24,65	11,6
35AR	Rotary	ISO20778	CM9	1	–	40,55	9,46	3,128	27,96	24,75	10,8
35AR	Rotary	ISO20778	CM9	2	–	40,28	7,36	3,159	29,77	25,85	10,9
35AR	Rotary	ISO20778	CM9	3	–	41,00	9,27	3,196	28,54	25,50	10,8
35AR	Rotary	ISO20778	CM9	4	–	40,48	9,34	3,197	27,94	25,75	10,8
35AR	Rotary	ISO20778	CM9	5	–	40,42	8,79	3,150	28,48	25,35	10,6
36AL	Linear	ISO20778	CM9	1	–	48,80	11,79	3,198	33,81	24,09	11,4
36AL	Linear	ISO20778	CM9	2	–	47,38	12,65	3,170	31,55	23,92	11,1
36AL	Linear	ISO20778	CM9	3	–	47,25	10,01	3,157	34,09	23,84	11,0
36AL	Linear	ISO20778	CM9	4	–	48,53	11,48	3,217	33,83	25,85	11,4
36AL	Linear	ISO20778	CM9	5	–	45,10	9,30	3,143	32,65	23,81	11,2
36AR	Rotary	ISO20778	CM9	1	–	40,40	7,70	2,934	29,76	25,80	10,1
36AR	Rotary	ISO20778	CM9	2	–	39,58	7,90	2,908	28,78	25,63	10,0

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
36AR	Rotary	ISO20778	CM9	3	–	38,76	8,91	2,990	26,87	25,14	9,8
36AR	Rotary	ISO20778	CM9	4	–	39,49	8,57	2,830	28,08	25,14	10,0
36AR	Rotary	ISO20778	CM9	5	–	–	–	–	–	–	–
38AL	Linear	ISO20778	CM9	1	–	45,04	10,89	3,079	31,07	23,54	11,0
38AL	Linear	ISO20778	CM9	2	–	43,86	10,74	2,966	30,15	22,88	11,2
38AL	Linear	ISO20778	CM9	3	–	46,24	12,83	3,151	30,26	23,09	11,2
38AL	Linear	ISO20778	CM9	4	–	44,81	11,48	3,023	30,32	22,98	11,5
38AL	Linear	ISO20778	CM9	5	–	44,55	11,07	3,090	30,40	22,90	11,3
42AR	Rotary	ISO20778	CM9	1	–	40,66	8,96	3,199	28,51	24,54	10,9
42AR	Rotary	ISO20778	CM9	2	–	40,38	8,74	3,216	28,43	24,90	10,6
42AR	Rotary	ISO20778	CM9	3	–	40,30	8,48	3,163	28,66	24,67	10,6
42AR	Rotary	ISO20778	CM9	4	–	41,19	8,91	3,237	29,05	24,89	10,7
42AR	Rotary	ISO20778	CM9	5	–	39,92	9,03	3,202	27,69	24,22	10,4
43AL	Linear	ISO20778	CM9	1	–	44,60	10,94	3,144	30,51	23,07	11,4
43AL	Linear	ISO20778	CM9	2	–	46,64	11,47	3,200	31,98	24,57	11,4
43AL	Linear	ISO20778	CM9	3	–	46,59	10,52	3,166	32,91	24,22	11,2
43AL	Linear	ISO20778	CM9	4	–	48,98	10,81	3,203	34,96	24,65	11,5
43AL	Linear	ISO20778	CM9	5	–	47,14	10,41	3,205	33,52	24,47	11,3
01BR	Rotary	ISO3308	CM10	1	965,0	15,21	1,85	1,312	12,04	12,53	9,7
01BR	Rotary	ISO3308	CM10	2	968,0	15,20	2,11	1,295	11,80	12,69	9,8
01BR	Rotary	ISO3308	CM10	3	964,0	15,23	2,06	1,331	11,84	12,54	9,7
01BR	Rotary	ISO3308	CM10	4	968,0	15,05	1,98	1,272	11,80	12,56	9,6
01BR	Rotary	ISO3308	CM10	5	965,0	15,02	1,97	1,268	11,78	12,66	9,6
02BL	Linear	ISO3308	CM10	1	964,0	15,08	1,57	1,196	12,32	13,13	10,2

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
02BL	Linear	ISO3308	CM10	2	961,0	14,80	1,31	1,188	12,30	12,55	10,1
02BL	Linear	ISO3308	CM10	3	969,0	14,52	1,40	1,170	11,95	12,65	10,4
02BL	Linear	ISO3308	CM10	4	972,0	14,25	1,08	1,153	12,01	12,39	10,2
02BL	Linear	ISO3308	CM10	5	974,0	14,61	1,42	1,161	12,03	12,56	10,2
02BR	Rotary	ISO3308	CM10	1	966,0	15,48	2,41	1,258	11,81	12,91	9,8
02BR	Rotary	ISO3308	CM10	2	958,0	14,75	2,03	1,186	11,54	12,43	9,5
02BR	Rotary	ISO3308	CM10	3	972,0	15,27	2,26	1,215	11,80	12,69	9,9
02BR	Rotary	ISO3308	CM10	4	965,0	15,39	2,38	1,217	11,79	13,01	9,8
02BR	Rotary	ISO3308	CM10	5	961,0	14,83	2,09	1,185	11,56	12,92	9,6
03BL	Linear	ISO3308	CM10	1	968,5	15,27	1,49	1,315	12,46	11,99	9,7
03BL	Linear	ISO3308	CM10	2	968,0	15,51	1,64	1,370	12,50	12,64	10,0
03BL	Linear	ISO3308	CM10	3	961,7	15,64	1,43	1,344	12,87	12,51	9,8
03BL	Linear	ISO3308	CM10	4	960,9	15,36	1,62	1,339	12,40	12,53	9,9
03BL	Linear	ISO3308	CM10	5	961,3	15,76	1,58	1,379	12,81	12,47	9,8
04BR	Rotary	ISO3308	CM10	1	963,0	15,71	1,82	1,294	12,60	12,44	10,1
04BR	Rotary	ISO3308	CM10	2	961,5	15,55	1,67	1,314	12,57	12,39	10,0
04BR	Rotary	ISO3308	CM10	3	961,5	14,85	1,52	1,257	12,07	11,68	10,0
04BR	Rotary	ISO3308	CM10	4	961,0	15,34	1,65	1,270	12,42	12,05	10,1
04BR	Rotary	ISO3308	CM10	5	968,5	15,30	1,69	1,270	12,34	12,59	10,2
06BR	Rotary	ISO3308	CM10	1	962,2	15,01	1,84	1,245	11,93	12,39	9,8
06BR	Rotary	ISO3308	CM10	2	966,7	15,60	2,15	1,308	12,14	12,30	9,9
06BR	Rotary	ISO3308	CM10	3	964,1	15,59	2,31	1,293	11,99	12,49	9,8
06BR	Rotary	ISO3308	CM10	4	966,6	15,00	1,74	1,246	12,01	12,26	9,8
06BR	Rotary	ISO3308	CM10	5	966,5	15,52	1,90	1,291	12,33	12,66	9,8

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
07BR	Rotary	ISO3308	CM10	1	965,0	14,25	1,74	1,180	11,33	11,98	9,5
07BR	Rotary	ISO3308	CM10	2	965,0	15,14	2,04	1,240	11,86	12,33	9,7
07BR	Rotary	ISO3308	CM10	3	960,0	14,84	1,76	1,240	11,84	12,19	9,5
07BR	Rotary	ISO3308	CM10	4	970,0	14,90	1,89	1,240	11,77	12,50	9,6
07BR	Rotary	ISO3308	CM10	5	965,0	15,09	1,92	1,260	11,91	12,25	9,6
08BL	Linear	ISO3308	CM10	1	959,3	15,28	1,58	1,263	12,44	–	9,6
08BL	Linear	ISO3308	CM10	2	957,7	15,75	1,63	1,310	12,81	–	9,7
08BL	Linear	ISO3308	CM10	3	964,2	15,12	1,64	1,258	12,23	–	9,8
08BL	Linear	ISO3308	CM10	4	965,3	15,07	1,39	1,253	12,42	–	9,7
08BL	Linear	ISO3308	CM10	5	956,1	15,43	1,49	1,280	12,66	–	9,6
09BR	Rotary	ISO3308	CM10	1	956,6	14,31	1,35	1,164	11,80	12,56	9,8
09BR	Rotary	ISO3308	CM10	2	956,4	14,35	1,36	1,188	11,80	13,05	9,6
09BR	Rotary	ISO3308	CM10	3	955,8	13,91	1,38	1,149	11,38	12,53	9,6
09BR	Rotary	ISO3308	CM10	4	956,1	14,10	1,33	1,157	11,61	12,42	9,8
09BR	Rotary	ISO3308	CM10	5	956,8	14,55	1,36	1,163	12,03	12,80	9,8
10BR	Rotary	ISO3308	CM10	1	969,1	14,51	1,95	1,246	11,31	12,19	11,2
10BR	Rotary	ISO3308	CM10	2	972,8	14,12	1,78	1,210	11,13	11,89	11,2
10BR	Rotary	ISO3308	CM10	3	976,9	14,60	1,81	1,224	11,56	12,46	11,2
10BR	Rotary	ISO3308	CM10	4	969,8	14,62	1,87	1,257	11,49	12,87	11,4
10BR	Rotary	ISO3308	CM10	5	966,7	14,54	1,83	1,244	11,47	12,36	11,1
11BR	Rotary	ISO3308	CM10	1	971,4	14,45	1,65	1,268	11,53	12,15	11,1
11BR	Rotary	ISO3308	CM10	2	968,4	14,46	1,83	1,256	11,37	11,92	11,1
11BR	Rotary	ISO3308	CM10	3	973,4	14,45	1,64	1,269	11,54	11,77	11,5
11BR	Rotary	ISO3308	CM10	4	970,8	14,11	1,70	1,219	11,19	11,67	11,3

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
11BR	Rotary	ISO3308	CM10	5	968,9	14,43	1,71	1,257	11,46	11,82	11,2
12BR	Rotary	ISO3308	CM10	1	966,1	14,39	1,76	1,219	11,41	11,83	9,6
12BR	Rotary	ISO3308	CM10	2	971,8	14,71	1,79	1,244	11,68	12,19	9,6
12BR	Rotary	ISO3308	CM10	3	969,5	15,30	1,95	1,295	12,06	12,67	9,6
12BR	Rotary	ISO3308	CM10	4	966,5	14,33	1,74	1,187	11,40	12,12	9,6
12BR	Rotary	ISO3308	CM10	5	965,8	14,28	1,87	1,198	11,21	11,97	9,4
13BR	Rotary	ISO3308	CM10	1	969,4	14,41	1,69	1,212	11,51	12,37	9,5
13BR	Rotary	ISO3308	CM10	2	970,5	14,39	1,82	1,239	11,33	12,87	9,5
13BR	Rotary	ISO3308	CM10	3	969,3	14,28	1,77	1,160	11,35	12,97	9,5
13BR	Rotary	ISO3308	CM10	4	964,7	14,50	1,82	1,197	11,49	13,00	9,5
13BR	Rotary	ISO3308	CM10	5	970,4	14,31	1,59	1,184	11,54	12,87	9,6
14BR	Rotary	ISO3308	CM10	1	968,9	14,75	1,78	1,242	11,73	13,10	9,7
14BR	Rotary	ISO3308	CM10	2	968,7	15,10	1,86	1,278	11,96	12,99	9,7
14BR	Rotary	ISO3308	CM10	3	969,0	14,53	1,81	1,194	11,52	12,45	9,6
14BR	Rotary	ISO3308	CM10	4	968,6	13,81	1,61	1,124	11,08	12,36	9,4
14BR	Rotary	ISO3308	CM10	5	974,4	14,80	1,76	1,254	11,79	12,71	9,7
15BL	Linear	ISO3308	CM10	1	960,0	15,79	1,60	1,318	12,87	11,56	10,2
15BL	Linear	ISO3308	CM10	2	958,0	15,46	1,42	1,292	12,74	11,87	10,0
15BL	Linear	ISO3308	CM10	3	960,6	15,74	1,53	1,291	12,92	11,90	10,2
15BL	Linear	ISO3308	CM10	4	956,6	14,64	1,23	1,284	12,13	11,61	10,1
15BL	Linear	ISO3308	CM10	5	962,1	14,31	1,02	1,246	12,04	11,68	10,6
16BR	Rotary	ISO3308	CM10	1	983,0	14,58	2,04	1,180	11,36	13,39	10,5
16BR	Rotary	ISO3308	CM10	2	976,0	14,99	2,08	1,220	11,70	12,56	9,9
16BR	Rotary	ISO3308	CM10	3	974,0	14,74	2,04	1,170	11,53	12,60	9,9

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
16BR	Rotary	ISO3308	CM10	4	971,0	15,20	2,09	1,270	11,84	12,45	10,0
16BR	Rotary	ISO3308	CM10	5	981,0	14,71	2,04	1,170	11,50	12,82	10,0
18BL	Linear	ISO3308	CM10	1	961,0	16,21	1,50	1,302	13,40	12,51	10,4
18BL	Linear	ISO3308	CM10	2	955,0	13,77	0,73	1,151	11,89	10,91	9,3
18BL	Linear	ISO3308	CM10	3	966,0	14,17	1,39	1,178	11,61	11,05	10,1
18BL	Linear	ISO3308	CM10	4	961,0	14,98	1,42	1,239	12,32	11,61	10,1
18BL	Linear	ISO3308	CM10	5	960,0	15,13	0,92	1,296	12,92	11,68	10,5
19BR	Rotary	ISO3308	CM10	1	960,6	14,45	1,76	1,169	11,53	12,40	9,2
19BR	Rotary	ISO3308	CM10	2	964,3	14,16	1,77	1,218	11,17	12,14	9,3
19BR	Rotary	ISO3308	CM10	3	962,3	14,80	1,91	1,205	11,69	12,16	9,4
19BR	Rotary	ISO3308	CM10	4	962,3	14,42	1,98	1,225	11,21	12,23	9,3
19BR	Rotary	ISO3308	CM10	5	963,7	14,67	1,82	1,294	11,56	12,27	9,2
20BR	Rotary	ISO3308	CM10	1	965,7	16,01	1,89	1,216	12,90	12,16	10,1
20BR	Rotary	ISO3308	CM10	2	965,9	15,73	1,92	1,267	12,54	12,31	10,1
20BR	Rotary	ISO3308	CM10	3	962,8	16,13	2,46	1,231	12,44	12,24	10,2
20BR	Rotary	ISO3308	CM10	4	960,1	16,07	1,95	1,472	12,65	12,90	10,2
20BR	Rotary	ISO3308	CM10	5	960,2	15,64	1,81	1,244	12,58	12,00	10,2
21BR	Rotary	ISO3308	CM10	1	967,6	14,53	1,79	1,211	11,53	12,60	9,4
21BR	Rotary	ISO3308	CM10	2	964,4	14,55	1,77	1,213	11,57	12,39	9,4
21BR	Rotary	ISO3308	CM10	3	967,5	14,49	1,87	1,197	11,42	12,42	9,5
21BR	Rotary	ISO3308	CM10	4	967,0	14,25	1,73	1,199	11,32	12,27	9,5
21BR	Rotary	ISO3308	CM10	5	971,9	14,23	1,79	1,173	11,27	12,49	9,6
22BR	Rotary	ISO3308	CM10	1	968,1	14,78	1,79	1,233	11,75	12,09	9,6
22BR	Rotary	ISO3308	CM10	2	966,4	14,58	1,73	1,220	11,63	12,21	9,6

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
22BR	Rotary	ISO3308	CM10	3	968,7	14,87	1,94	1,231	11,70	12,21	9,8
22BR	Rotary	ISO3308	CM10	4	974,2	14,77	1,75	1,251	11,77	12,43	9,9
22BR	Rotary	ISO3308	CM10	5	971,7	14,41	1,93	1,211	11,27	11,93	9,9
23BR	Rotary	ISO3308	CM10	1	954,0	14,80	1,49	1,440	11,87	12,60	9,2
23BR	Rotary	ISO3308	CM10	2	955,2	15,20	1,68	1,390	12,13	12,80	9,2
23BR	Rotary	ISO3308	CM10	3	952,3	14,90	1,83	1,410	11,66	12,60	9,1
23BR	Rotary	ISO3308	CM10	4	954,0	15,40	1,82	1,450	12,13	12,80	9,2
23BR	Rotary	ISO3308	CM10	5	958,5	14,10	1,56	1,260	11,28	12,50	9,1
24BR	Rotary	ISO3308	CM10	1	958,2	14,90	1,54	1,420	11,94	12,80	9,4
24BR	Rotary	ISO3308	CM10	2	954,2	15,40	1,80	1,410	12,19	12,90	9,4
24BR	Rotary	ISO3308	CM10	3	951,0	15,10	1,86	1,420	11,83	12,60	9,1
24BR	Rotary	ISO3308	CM10	4	956,5	15,50	1,72	1,450	12,33	12,80	9,4
24BR	Rotary	ISO3308	CM10	5	953,0	14,20	1,56	1,270	11,37	12,50	9,2
25BR	Rotary	ISO3308	CM10	1	963,5	15,22	1,89	1,235	12,10	12,61	9,4
25BR	Rotary	ISO3308	CM10	2	965,0	14,90	1,92	1,192	11,79	12,46	9,5
25BR	Rotary	ISO3308	CM10	3	963,5	15,17	1,91	1,217	12,04	12,66	9,5
25BR	Rotary	ISO3308	CM10	4	964,5	14,88	1,81	1,215	11,86	12,53	9,4
25BR	Rotary	ISO3308	CM10	5	964,5	14,94	1,91	1,167	11,86	12,66	9,4
26BR	Rotary	ISO3308	CM10	1	963,0	14,63	1,73	1,140	11,76	12,30	9,7
26BR	Rotary	ISO3308	CM10	2	963,0	15,14	1,79	1,201	12,15	12,14	9,5
26BR	Rotary	ISO3308	CM10	3	965,5	14,88	1,68	1,181	12,02	12,13	9,6
26BR	Rotary	ISO3308	CM10	4	961,5	14,53	1,55	1,167	11,81	12,10	9,4
26BR	Rotary	ISO3308	CM10	5	963,0	14,55	1,48	1,152	11,92	12,06	9,5
27BR	Rotary	ISO3308	CM10	1	956,0	15,08	2,15	1,200	11,73	11,76	10,0

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
27BR	Rotary	ISO3308	CM10	2	959,0	15,36	2,31	1,190	11,86	12,23	10,0
27BR	Rotary	ISO3308	CM10	3	967,0	14,57	2,05	1,110	11,41	12,46	10,1
27BR	Rotary	ISO3308	CM10	4	964,0	14,95	2,16	1,150	11,64	11,87	10,1
27BR	Rotary	ISO3308	CM10	5	961,0	14,81	2,10	1,140	11,57	12,19	10,0
28BR	Rotary	ISO3308	CM10	1	955,0	15,18	2,02	1,230	11,93	12,52	9,8
28BR	Rotary	ISO3308	CM10	2	960,0	14,87	2,05	1,180	11,64	12,39	9,9
28BR	Rotary	ISO3308	CM10	3	966,0	14,73	1,85	1,150	11,73	12,94	9,8
28BR	Rotary	ISO3308	CM10	4	961,0	14,97	1,96	1,200	11,81	12,06	9,8
28BR	Rotary	ISO3308	CM10	5	961,0	15,19	2,07	1,190	11,93	12,54	9,8
29BR	Rotary	ISO3308	CM10	1	970,0	14,08	1,67	1,253	11,16	11,77	9,7
29BR	Rotary	ISO3308	CM10	2	968,1	14,05	1,48	1,296	11,28	12,05	9,5
29BR	Rotary	ISO3308	CM10	3	968,3	14,00	1,74	1,274	10,98	11,87	9,4
29BR	Rotary	ISO3308	CM10	4	965,0	13,87	1,64	1,250	10,98	11,77	9,3
29BR	Rotary	ISO3308	CM10	5	968,2	14,13	1,58	1,258	11,29	12,30	9,4
30BL	Linear	ISO3308	CM10	1	960,0	15,90	1,21	1,365	13,32	12,30	10,2
30BL	Linear	ISO3308	CM10	2	954,0	15,83	1,52	1,353	12,95	11,83	10,1
30BL	Linear	ISO3308	CM10	3	957,0	15,13	1,45	1,335	12,34	11,73	10,0
30BL	Linear	ISO3308	CM10	4	955,0	16,03	1,92	1,435	12,68	11,75	10,1
30BL	Linear	ISO3308	CM10	5	960,0	15,55	1,65	1,328	12,57	12,03	9,9
31BR	Rotary	ISO3308	CM10	1	964,4	14,71	1,97	1,369	11,37	12,75	9,8
31BR	Rotary	ISO3308	CM10	2	959,5	14,61	1,95	1,308	11,36	12,83	9,7
31BR	Rotary	ISO3308	CM10	3	968,2	14,58	2,02	1,302	11,26	12,61	9,9
31BR	Rotary	ISO3308	CM10	4	968,0	14,61	2,11	1,295	11,20	12,85	9,9
31BR	Rotary	ISO3308	CM10	5	969,5	14,52	1,90	1,313	11,30	12,60	9,8

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
32BR	Rotary	ISO3308	CM10	1	972,2	13,99	1,62	1,204	11,17	11,13	10,4
32BR	Rotary	ISO3308	CM10	2	971,9	14,20	1,65	1,209	11,34	11,57	10,1
32BR	Rotary	ISO3308	CM10	3	967,4	13,82	1,61	1,158	11,05	11,77	10,0
32BR	Rotary	ISO3308	CM10	4	975,5	13,82	1,67	1,210	10,94	11,58	10,1
32BR	Rotary	ISO3308	CM10	5	963,3	14,58	1,76	1,236	11,58	11,86	10,0
33BL	Linear	ISO3308	CM10	1	964,6	14,75	1,36	1,254	12,14	10,83	11,2
33BL	Linear	ISO3308	CM10	2	971,8	14,68	1,38	1,178	12,12	11,82	10,8
33BL	Linear	ISO3308	CM10	3	972,0	14,47	1,24	1,199	12,03	12,23	10,9
33BL	Linear	ISO3308	CM10	4	968,5	14,56	1,26	1,207	12,09	11,71	11,0
33BL	Linear	ISO3308	CM10	5	974,3	14,23	1,22	1,201	11,81	12,07	11,0
34BR	Rotary	ISO3308	CM10	1	962,1	14,50	1,85	1,279	11,37	11,80	9,6
34BR	Rotary	ISO3308	CM10	2	966,0	14,26	1,88	1,273	11,11	11,87	9,5
34BR	Rotary	ISO3308	CM10	3	965,8	14,98	1,94	1,285	11,76	12,39	9,6
34BR	Rotary	ISO3308	CM10	4	967,2	14,95	1,96	1,278	11,71	12,00	9,7
34BR	Rotary	ISO3308	CM10	5	962,2	15,04	1,94	1,291	11,81	12,07	9,7
35BR	Rotary	ISO3308	CM10	1	958,4	15,02	1,73	1,264	12,03	13,40	9,7
35BR	Rotary	ISO3308	CM10	2	963,2	15,04	1,38	1,285	12,38	13,00	9,9
35BR	Rotary	ISO3308	CM10	3	959,8	15,05	1,67	1,272	12,11	13,00	9,8
35BR	Rotary	ISO3308	CM10	4	962,4	14,94	2,21	1,393	11,33	13,20	9,7
35BR	Rotary	ISO3308	CM10	5	958,7	15,31	2,59	1,288	11,43	13,30	9,6
36BL	Linear	ISO3308	CM10	1	962,6	15,90	2,35	1,331	12,23	11,68	10,3
36BL	Linear	ISO3308	CM10	2	961,8	16,17	2,09	1,308	12,77	11,61	10,1
36BL	Linear	ISO3308	CM10	3	956,6	15,84	1,69	1,314	12,84	11,41	10,1
36BL	Linear	ISO3308	CM10	4	962,9	15,06	1,39	1,267	12,40	12,44	10,3

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
36BL	Linear	ISO3308	CM10	5	930,8	16,58	1,62	1,350	13,61	12,37	10,5
36BR	Rotary	ISO3308	CM10	1	965,4	13,55	1,39	1,163	10,99	11,06	9,5
36BR	Rotary	ISO3308	CM10	2	969,0	14,35	1,49	1,199	11,67	11,11	9,6
36BR	Rotary	ISO3308	CM10	3	965,9	13,66	1,50	1,174	10,99	11,38	9,1
36BR	Rotary	ISO3308	CM10	4	965,2	14,02	1,30	1,109	11,61	11,16	9,1
36BR	Rotary	ISO3308	CM10	5	965,5	14,10	1,50	1,208	11,39	11,09	9,5
37BL	Linear	ISO3308	CM10	1	967,0	14,46	1,53	1,192	11,74	11,39	11,1
37BL	Linear	ISO3308	CM10	2	962,6	14,53	1,35	1,218	11,96	11,19	10,7
37BL	Linear	ISO3308	CM10	3	961,7	14,86	1,62	1,241	12,00	11,30	11,1
37BL	Linear	ISO3308	CM10	4	964,6	15,61	1,69	1,294	12,63	11,40	10,8
37BL	Linear	ISO3308	CM10	5	961,3	14,74	1,51	1,157	12,07	11,10	10,6
38BL	Linear	ISO3308	CM10	1	968,4	15,15	1,68	1,168	12,31	9,94	10,1
38BL	Linear	ISO3308	CM10	2	968,1	15,48	1,37	1,285	12,82	11,63	10,4
38BL	Linear	ISO3308	CM10	3	970,7	15,40	1,32	1,208	12,87	11,85	10,2
38BL	Linear	ISO3308	CM10	4	971,3	15,38	1,38	1,240	12,76	11,08	10,2
38BL	Linear	ISO3308	CM10	5	972,3	15,75	1,46	1,250	13,04	11,63	10,5
39BR	Rotary	ISO3308	CM10	1	969,9	13,94	1,61	1,141	11,19	12,57	9,5
39BR	Rotary	ISO3308	CM10	2	968,2	13,87	1,74	1,140	10,99	12,45	9,6
39BR	Rotary	ISO3308	CM10	3	965,6	14,02	1,68	1,129	11,21	12,77	9,4
39BR	Rotary	ISO3308	CM10	4	968,7	14,31	1,68	1,153	11,48	13,08	9,6
39BR	Rotary	ISO3308	CM10	5	969,6	13,87	1,63	1,148	11,09	12,42	9,5
40BL	Linear	ISO3308	CM10	1	970,7	14,71	1,33	1,222	12,16	11,28	10,1
40BL	Linear	ISO3308	CM10	2	964,2	14,53	1,43	1,188	11,92	10,98	9,9
40BL	Linear	ISO3308	CM10	3	964,5	15,05	1,53	1,238	12,28	11,31	10,0

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
40BL	Linear	ISO3308	CM10	4	964,8	15,28	1,54	1,257	12,48	11,45	10,0
40BL	Linear	ISO3308	CM10	5	969,2	14,76	1,58	1,217	11,96	11,25	9,8
42BR	Rotary	ISO3308	CM10	1	939,0	14,45	1,86	1,288	11,30	11,46	9,7
42BR	Rotary	ISO3308	CM10	2	952,0	14,70	1,70	1,302	11,70	11,43	9,5
42BR	Rotary	ISO3308	CM10	3	962,0	15,11	1,74	1,349	12,02	11,97	9,6
42BR	Rotary	ISO3308	CM10	4	945,0	15,49	2,09	1,337	12,07	11,62	9,8
42BR	Rotary	ISO3308	CM10	5	953,0	14,88	1,88	1,290	13,00	12,31	9,4
43BL	Linear	ISO3308	CM10	1	967,4	14,83	1,26	1,261	12,31	11,11	9,9
43BL	Linear	ISO3308	CM10	2	968,4	15,65	1,32	1,351	12,99	11,98	10,5
43BL	Linear	ISO3308	CM10	3	970,0	15,80	1,22	1,381	13,20	12,12	10,4
43BL	Linear	ISO3308	CM10	4	969,0	15,23	1,10	1,340	12,78	12,04	10,3
43BL	Linear	ISO3308	CM10	5	971,4	15,40	1,33	1,361	12,71	12,04	10,2
44BR	Rotary	ISO3308	CM10	1	968,5	14,99	1,79	1,163	12,04	12,72	9,5
44BR	Rotary	ISO3308	CM10	2	970,0	14,88	1,77	1,149	11,96	13,02	9,5
44BR	Rotary	ISO3308	CM10	3	964,5	14,82	1,62	1,150	12,05	12,88	9,4
44BR	Rotary	ISO3308	CM10	4	957,5	14,78	1,96	1,145	11,68	12,70	9,4
44BR	Rotary	ISO3308	CM10	5	951,5	15,10	2,11	1,274	11,72	12,98	9,2
45BR	Rotary	ISO3308	CM10	1	966,0	15,04	1,96	1,243	11,84	12,36	9,7
45BR	Rotary	ISO3308	CM10	2	951,0	15,12	1,99	1,209	11,92	12,32	9,8
45BR	Rotary	ISO3308	CM10	3	953,0	15,05	1,82	1,184	12,05	12,25	9,4
45BR	Rotary	ISO3308	CM10	4	947,0	15,46	2,05	1,237	12,18	12,91	9,2
45BR	Rotary	ISO3308	CM10	5	950,0	15,14	2,23	1,274	11,64	13,19	9,4
01BR	Rotary	ISO20778	CM10	1	–	34,92	8,55	2,556	23,82	24,03	14,9
01BR	Rotary	ISO20778	CM10	2	–	34,91	8,51	2,547	23,85	23,79	15,0

Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
01BR	Rotary	ISO20778	CM10	3	–	34,50	8,71	2,462	23,33	23,44	15,0
01BR	Rotary	ISO20778	CM10	4	–	34,70	8,67	2,524	23,51	23,53	14,8
01BR	Rotary	ISO20778	CM10	5	–	34,72	8,63	2,511	23,58	23,76	14,8
02BL	Linear	ISO20778	CM10	1	–	39,44	10,31	2,328	26,81	24,70	15,3
02BL	Linear	ISO20778	CM10	2	–	39,16	10,29	2,370	26,51	24,58	15,2
02BL	Linear	ISO20778	CM10	3	–	38,17	9,93	2,312	25,92	24,22	15,4
02BL	Linear	ISO20778	CM10	4	–	39,42	10,34	2,298	26,79	24,43	15,1
02BL	Linear	ISO20778	CM10	5	–	38,07	10,02	2,286	25,77	24,58	15,1
02BR	Rotary	ISO20778	CM10	1	–	35,42	8,81	2,289	24,33	24,68	14,7
02BR	Rotary	ISO20778	CM10	2	–	35,27	8,40	2,243	24,63	24,40	14,9
02BR	Rotary	ISO20778	CM10	3	–	34,41	7,98	2,269	24,17	24,32	14,5
02BR	Rotary	ISO20778	CM10	4	–	34,93	8,56	2,258	24,12	24,55	14,8
02BR	Rotary	ISO20778	CM10	5	–	33,76	8,05	2,265	23,45	23,66	15,0
03BL	Linear	ISO20778	CM10	1	–	39,67	10,81	2,556	26,30	23,45	14,7
03BL	Linear	ISO20778	CM10	2	–	38,46	11,10	2,571	24,79	24,33	14,8
03BL	Linear	ISO20778	CM10	3	–	38,56	9,86	2,576	26,13	23,90	14,3
03BL	Linear	ISO20778	CM10	4	–	38,22	10,23	2,543	25,45	23,43	14,8
03BL	Linear	ISO20778	CM10	5	–	39,47	10,39	2,547	26,54	24,05	14,3
04BR	Rotary	ISO20778	CM10	1	–	36,98	9,10	2,518	25,36	23,23	15,1
04BR	Rotary	ISO20778	CM10	2	–	37,16	8,94	2,573	25,65	23,88	15,2
04BR	Rotary	ISO20778	CM10	3	–	36,58	8,54	2,610	25,43	23,71	15,1
04BR	Rotary	ISO20778	CM10	4	–	37,09	9,10	2,550	25,44	23,71	15,1
04BR	Rotary	ISO20778	CM10	5	–	36,44	8,54	2,567	25,34	23,31	15,0
05BR	Rotary	ISO20778	CM10	1	–	36,98	9,05	2,515	25,41	23,39	15,2

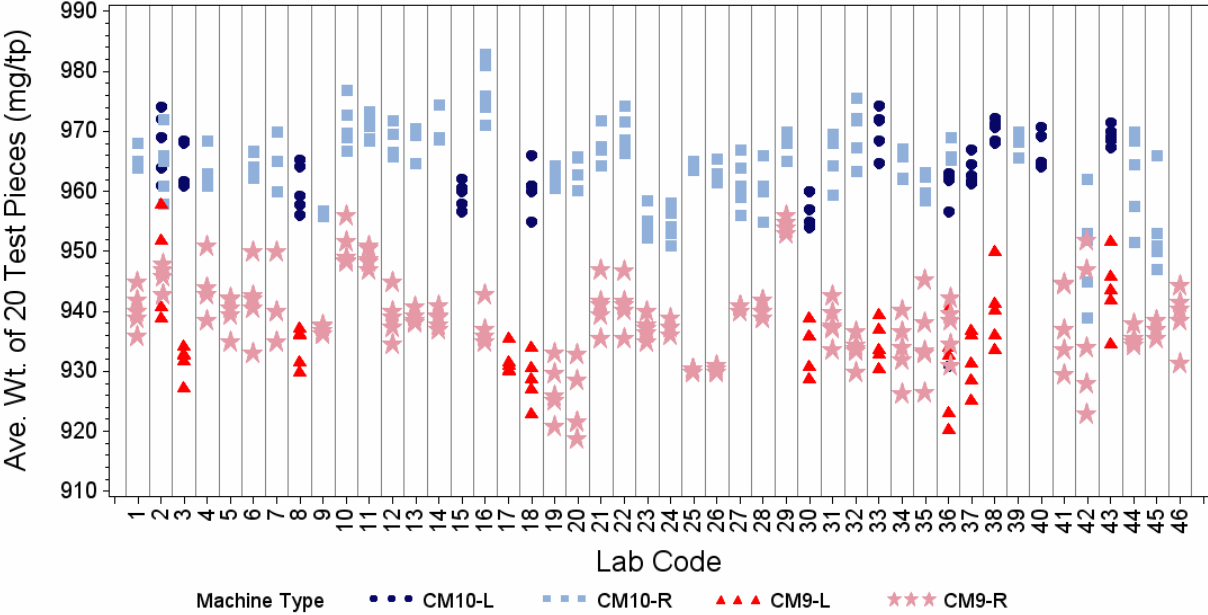
Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
05BR	Rotary	ISO20778	CM10	2	–	37,16	9,53	2,497	25,13	23,77	15,1
05BR	Rotary	ISO20778	CM10	3	–	37,45	8,75	2,558	26,15	23,72	14,8
09BR	Rotary	ISO20778	CM10	1	–	31,55	7,36	2,234	21,96	24,17	14,4
09BR	Rotary	ISO20778	CM10	2	–	31,26	7,39	2,265	21,61	23,75	14,2
09BR	Rotary	ISO20778	CM10	3	–	30,78	7,34	2,138	21,30	23,73	14,4
09BR	Rotary	ISO20778	CM10	4	–	32,14	7,40	2,302	22,44	24,06	14,4
09BR	Rotary	ISO20778	CM10	5	–	31,28	7,42	2,226	21,64	23,71	14,5
15BL	Linear	ISO20778	CM10	1	–	37,75	8,60	2,572	26,58	22,34	15,4
15BL	Linear	ISO20778	CM10	2	–	40,05	9,81	2,594	27,65	23,20	14,8
15BL	Linear	ISO20778	CM10	3	–	37,85	9,32	2,442	26,09	22,11	14,6
15BL	Linear	ISO20778	CM10	4	–	37,07	8,75	2,458	25,86	21,88	15,0
15BL	Linear	ISO20778	CM10	5	–	39,67	9,35	2,560	27,76	23,14	15,3
16BR	Rotary	ISO20778	CM10	1	–	34,21	8,67	2,360	23,18	24,80	15,9
16BR	Rotary	ISO20778	CM10	2	–	35,03	8,52	2,430	24,08	24,82	15,2
16BR	Rotary	ISO20778	CM10	3	–	35,66	8,62	2,500	24,54	24,93	15,3
16BR	Rotary	ISO20778	CM10	4	–	34,54	8,57	2,440	23,53	24,45	14,7
16BR	Rotary	ISO20778	CM10	5	–	35,14	9,12	2,510	23,51	24,50	14,9
18BL	Linear	ISO20778	CM10	1	–	39,55	10,17	2,356	27,03	22,70	15,2
18BL	Linear	ISO20778	CM10	2	–	35,72	9,67	2,188	23,87	21,46	14,3
18BL	Linear	ISO20778	CM10	3	–	38,65	9,82	2,362	26,46	22,14	15,0
18BL	Linear	ISO20778	CM10	4	–	39,12	10,07	2,417	26,64	22,24	15,3
18BL	Linear	ISO20778	CM10	5	–	38,79	10,99	2,387	25,41	22,09	14,9
19BR	Rotary	ISO20778	CM10	1	–	34,50	8,11	2,340	24,05	23,45	14,3
19BR	Rotary	ISO20778	CM10	2	–	34,76	8,06	2,295	24,40	24,02	14,1

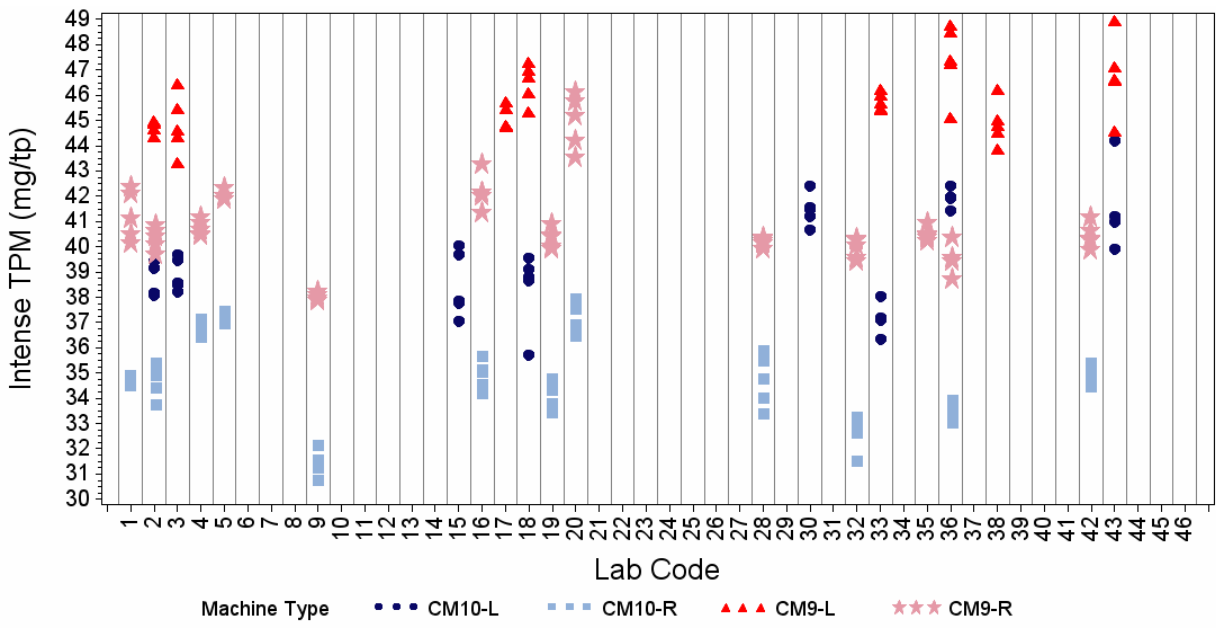
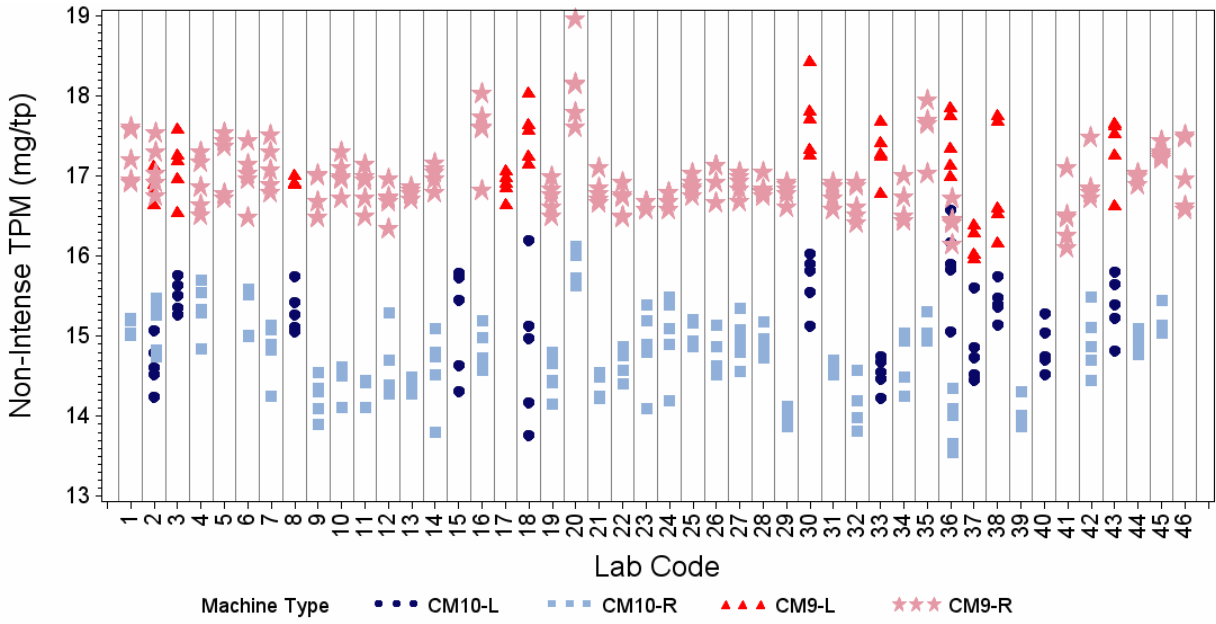
Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
19BR	Rotary	ISO20778	CM10	3	–	34,32	8,28	2,353	23,69	23,76	13,8
19BR	Rotary	ISO20778	CM10	4	–	33,46	8,04	2,349	23,08	23,19	13,8
19BR	Rotary	ISO20778	CM10	5	–	33,81	8,68	2,352	22,77	23,40	13,9
20BR	Rotary	ISO20778	CM10	1	–	37,72	7,94	2,494	27,29	22,77	15,4
20BR	Rotary	ISO20778	CM10	2	–	36,93	8,53	2,888	25,51	22,66	15,4
20BR	Rotary	ISO20778	CM10	3	–	37,53	8,33	2,457	26,74	22,77	15,4
20BR	Rotary	ISO20778	CM10	4	–	36,47	7,48	2,683	26,31	22,64	15,3
20BR	Rotary	ISO20778	CM10	5	–	37,96	7,13	2,546	28,29	23,41	15,4
28BR	Rotary	ISO20778	CM10	1	–	35,89	9,38	2,375	24,14	23,86	14,6
28BR	Rotary	ISO20778	CM10	2	–	35,48	9,51	2,290	23,68	23,63	14,8
28BR	Rotary	ISO20778	CM10	3	–	34,01	7,77	2,235	24,01	23,62	14,6
28BR	Rotary	ISO20778	CM10	4	–	34,78	8,53	2,300	23,95	23,60	14,7
28BR	Rotary	ISO20778	CM10	5	–	33,41	7,70	2,175	23,54	23,81	14,5
30BL	Linear	ISO20778	CM10	1	–	41,58	13,11	2,554	25,91	23,01	14,3
30BL	Linear	ISO20778	CM10	2	–	40,65	12,13	2,520	26,01	24,54	14,6
30BL	Linear	ISO20778	CM10	3	–	41,48	11,66	2,514	27,29	23,64	14,6
30BL	Linear	ISO20778	CM10	4	–	41,20	13,45	2,560	25,19	22,54	14,8
30BL	Linear	ISO20778	CM10	5	–	42,41	12,97	2,649	26,79	22,98	14,5
32BR	Rotary	ISO20778	CM10	1	–	33,25	8,02	2,393	22,83	22,82	15,6
32BR	Rotary	ISO20778	CM10	2	–	31,53	7,21	2,290	22,04	23,11	15,7
32BR	Rotary	ISO20778	CM10	3	–	33,15	8,01	2,336	22,81	22,74	15,7
32BR	Rotary	ISO20778	CM10	4	–	32,69	7,60	2,468	22,63	22,17	15,8
32BR	Rotary	ISO20778	CM10	5	–	32,66	7,71	2,372	22,58	22,71	15,7
33BL	Linear	ISO20778	CM10	1	–	38,06	10,35	2,407	25,30	23,08	16,3

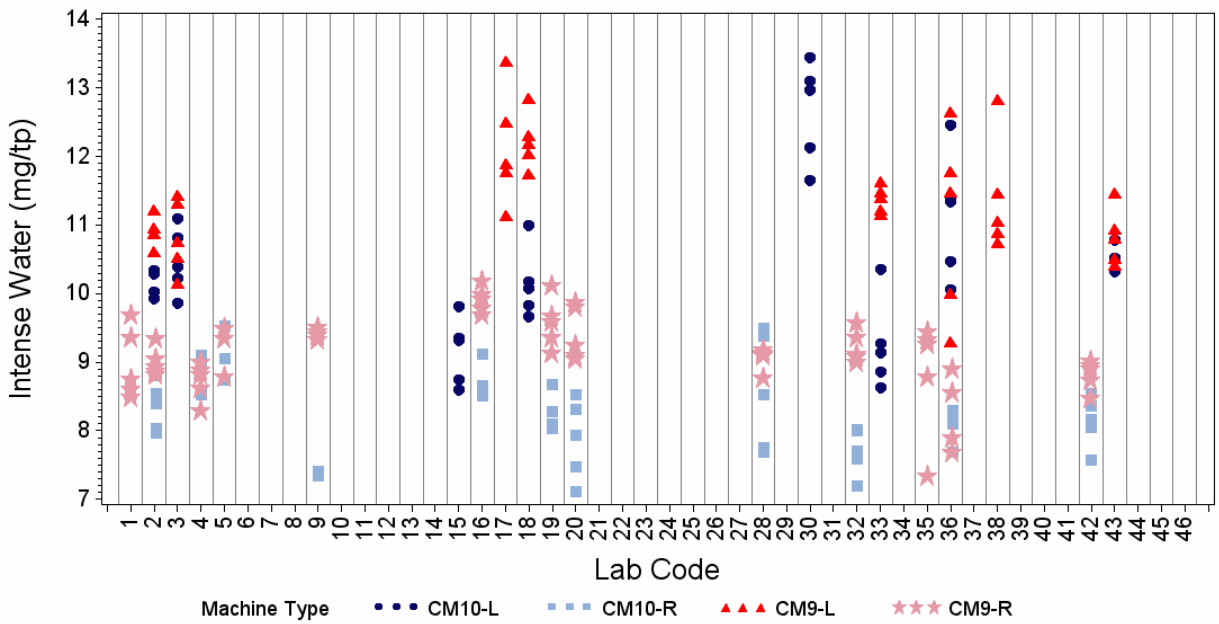
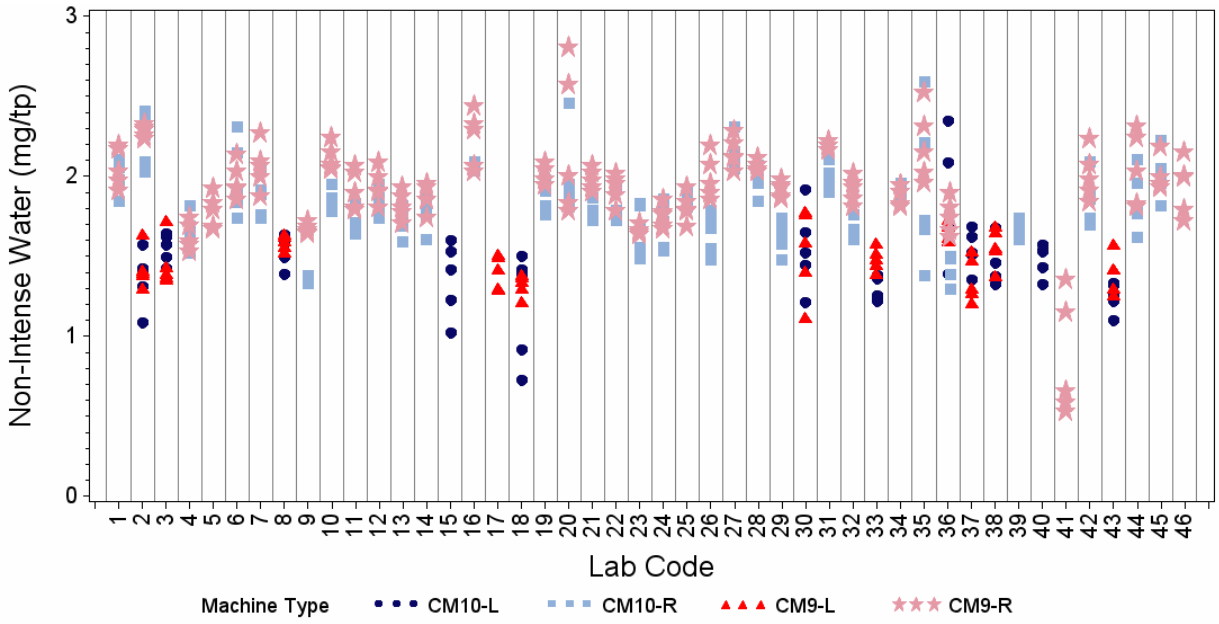
Code#	Type	Regime	Test Piece	Rep	Weight	TPM	Water	Nicotine	NFDPM	CO	Puff Count
33BL	Linear	ISO20778	CM10	2	–	37,09	8,87	2,286	25,94	23,55	16,6
33BL	Linear	ISO20778	CM10	3	–	37,20	9,26	2,332	25,61	22,70	16,2
33BL	Linear	ISO20778	CM10	4	–	36,33	8,63	2,258	25,45	23,00	16,7
33BL	Linear	ISO20778	CM10	5	–	37,11	9,14	2,412	25,56	23,44	16,2
36BL	Linear	ISO20778	CM10	1	–	41,91	11,37	2,332	28,20	22,68	15,7
36BL	Linear	ISO20778	CM10	2	–	41,95	12,47	2,534	26,95	23,03	14,9
36BL	Linear	ISO20778	CM10	3	–	42,42	10,46	2,542	29,42	22,47	15,1
36BL	Linear	ISO20778	CM10	4	–	41,98	11,34	2,579	28,06	24,91	15,7
36BL	Linear	ISO20778	CM10	5	–	41,43	10,06	2,517	28,84	23,17	15,1
36BR	Rotary	ISO20778	CM10	1	–	33,05	7,70	2,283	23,07	23,91	14,2
36BR	Rotary	ISO20778	CM10	2	–	33,94	8,11	2,321	23,51	24,66	13,8
36BR	Rotary	ISO20778	CM10	3	–	33,41	8,20	2,420	22,79	24,06	13,5
36BR	Rotary	ISO20778	CM10	4	–	33,59	8,31	2,255	23,03	23,97	13,8
36BR	Rotary	ISO20778	CM10	5	–	–	–	–	–	–	–
42BR	Rotary	ISO20778	CM10	1	–	34,47	8,06	2,618	23,79	22,74	15,1
42BR	Rotary	ISO20778	CM10	2	–	35,07	8,17	2,558	24,35	23,58	14,6
42BR	Rotary	ISO20778	CM10	3	–	34,98	7,57	2,602	24,81	22,99	14,5
42BR	Rotary	ISO20778	CM10	4	–	35,41	8,55	2,624	24,24	23,26	14,9
42BR	Rotary	ISO20778	CM10	5	–	34,85	8,37	2,655	23,82	22,48	14,5
43BL	Linear	ISO20778	CM10	1	–	41,00	10,32	2,564	28,12	23,27	15,3
43BL	Linear	ISO20778	CM10	2	–	39,90	10,50	2,468	26,94	22,80	15,8
43BL	Linear	ISO20778	CM10	3	–	41,21	10,52	3,166	27,53	23,59	15,1
43BL	Linear	ISO20778	CM10	4	–	44,21	10,78	2,483	30,95	23,57	15,2

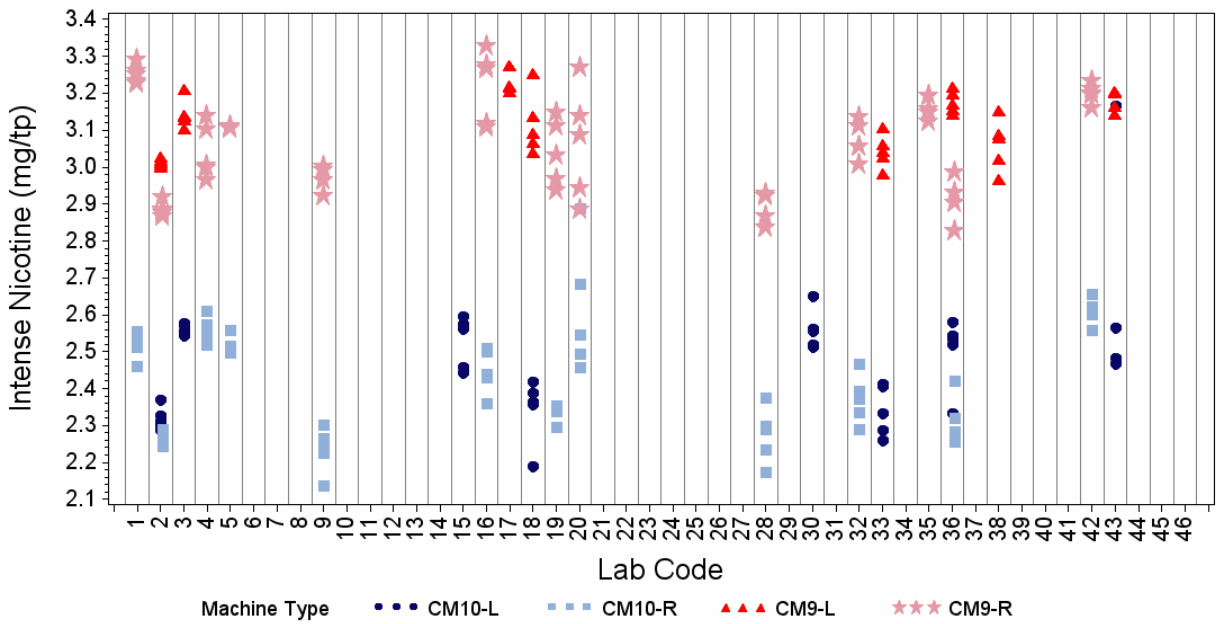
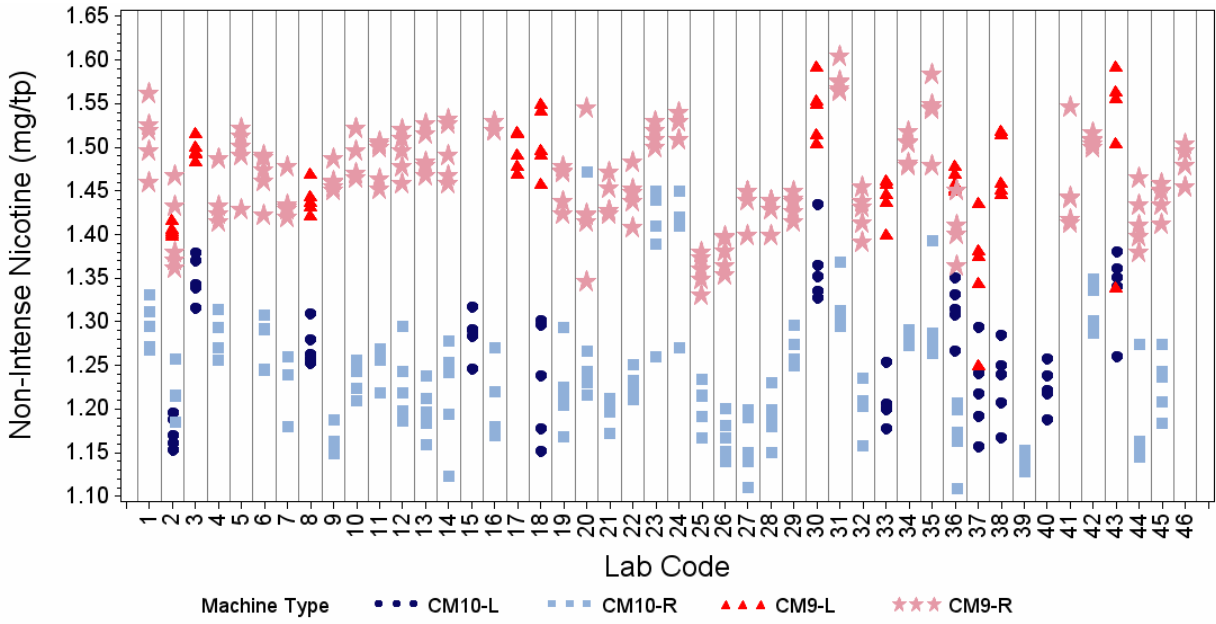
The 3rd character in the lab code indicates the monitor being tested. “A” corresponds to CM9 and “B” corresponds to CM10. The 4th character represents the type of machine with “L” corresponding to linear machines and “R” corresponding to rotary machines.

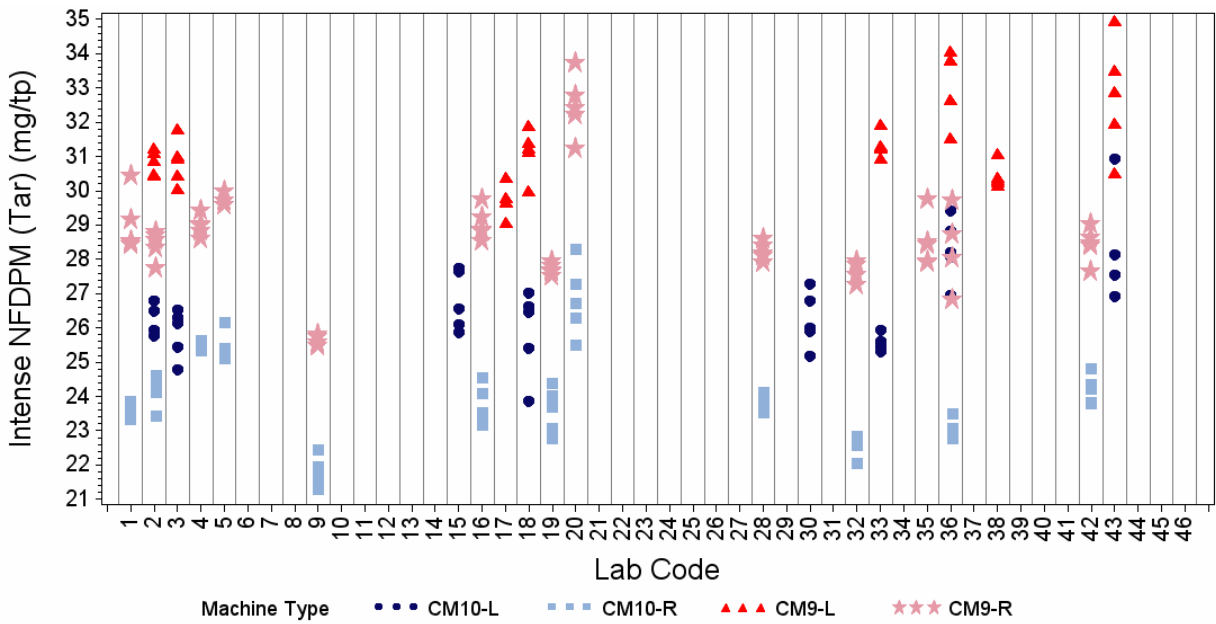
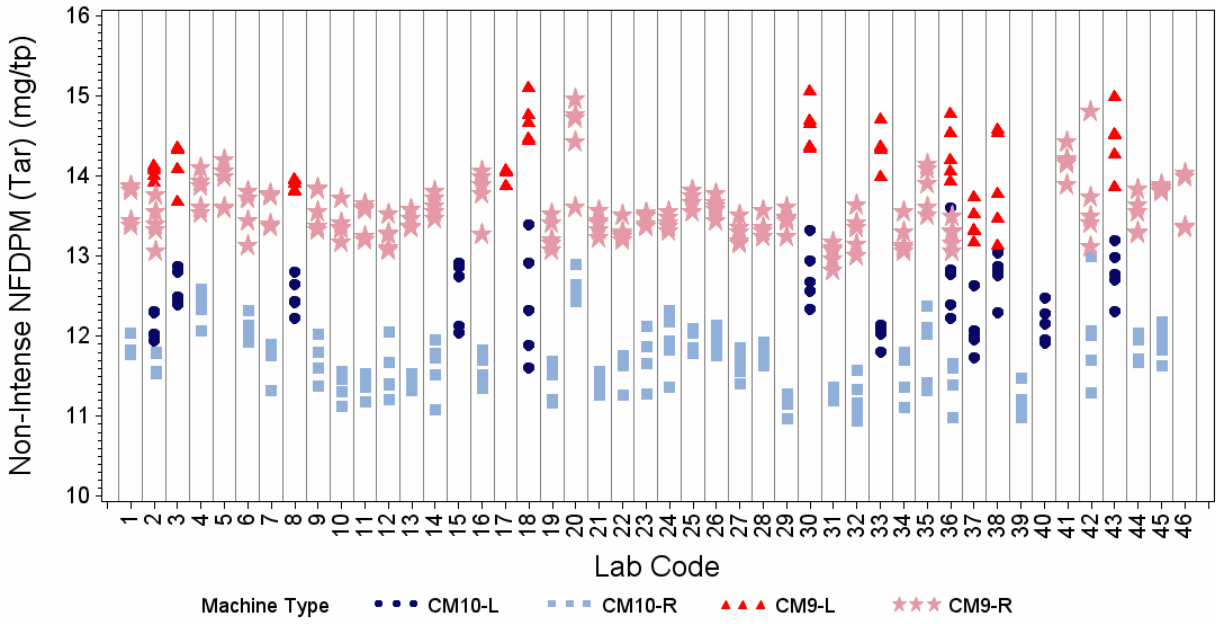
APPENDIX C – Graphs of Results

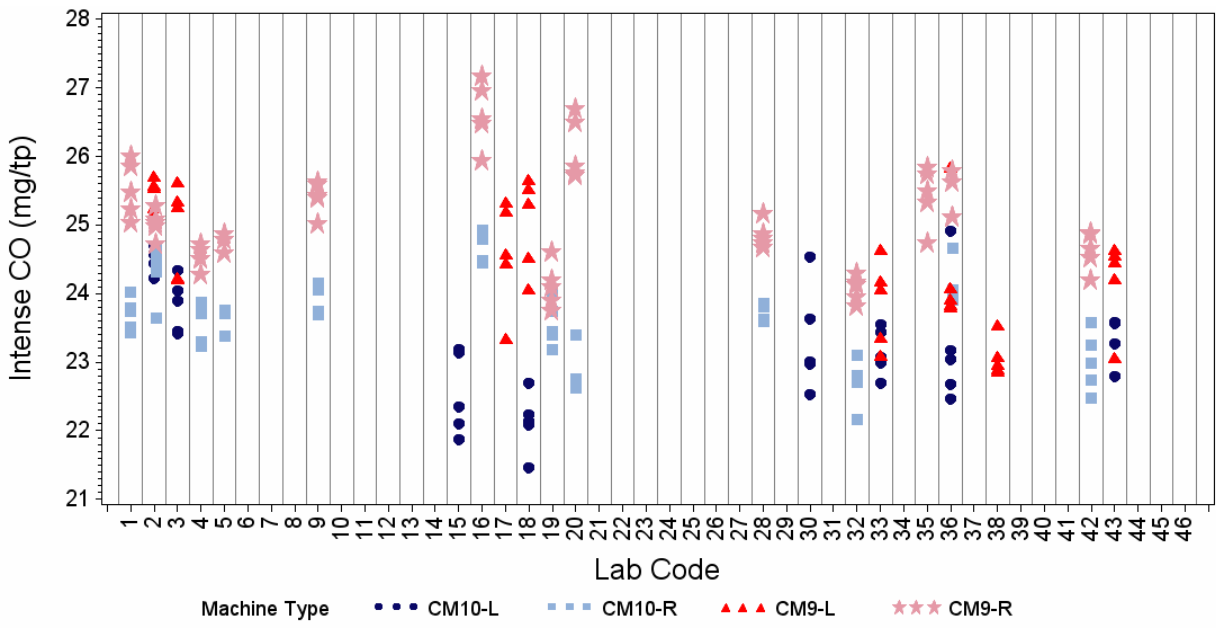
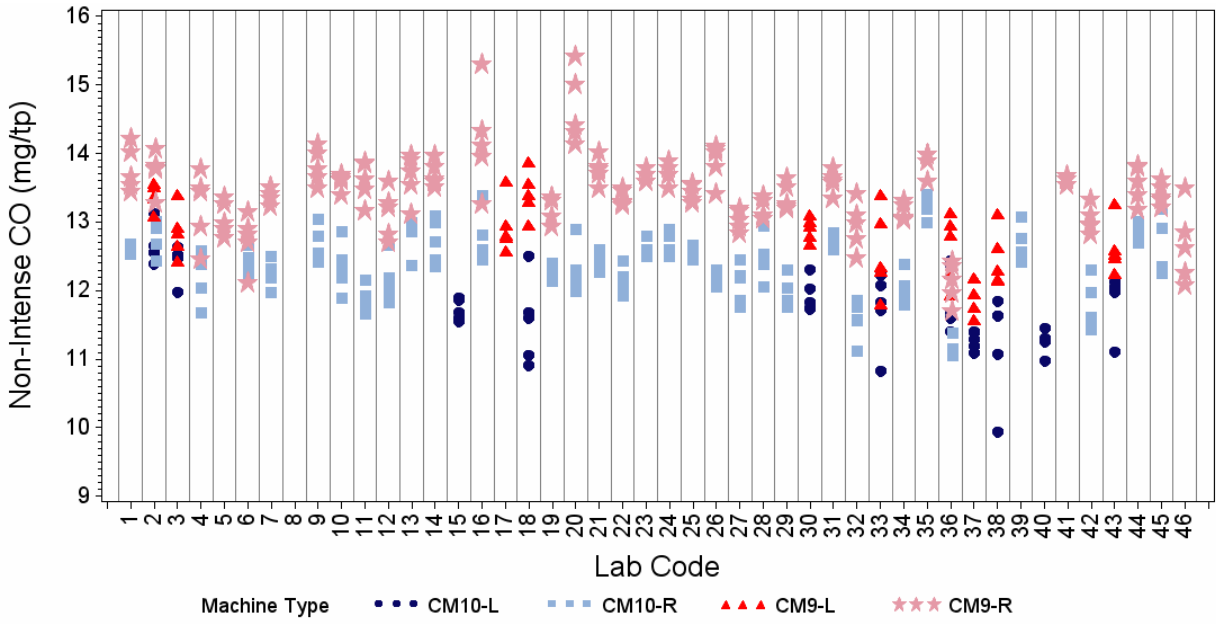


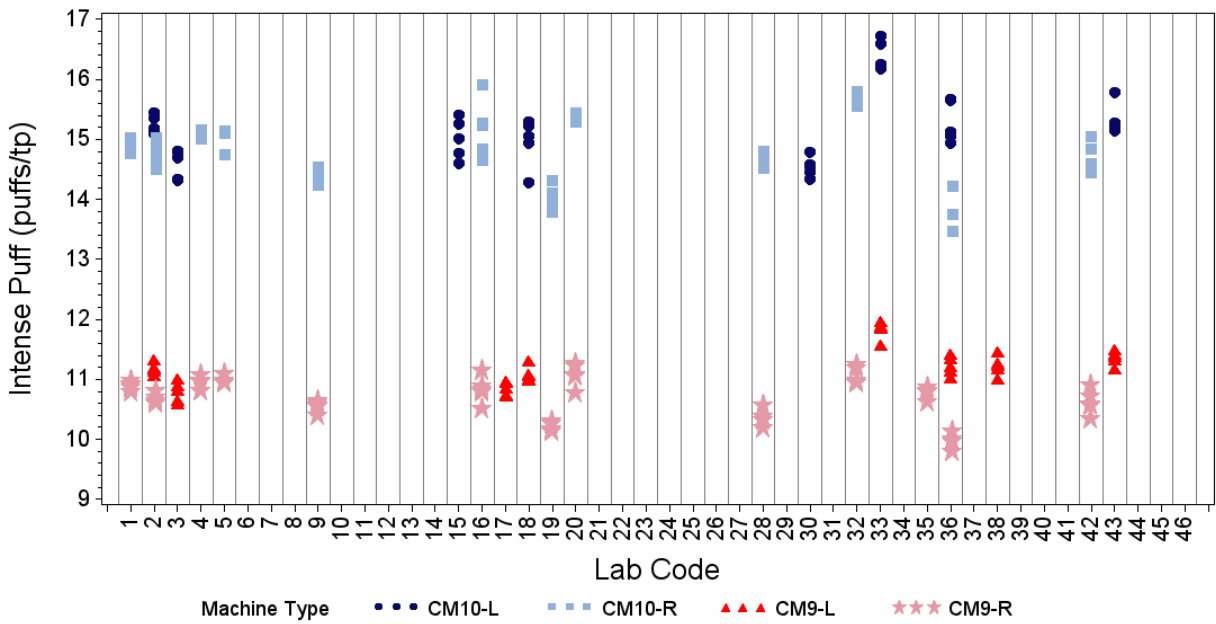
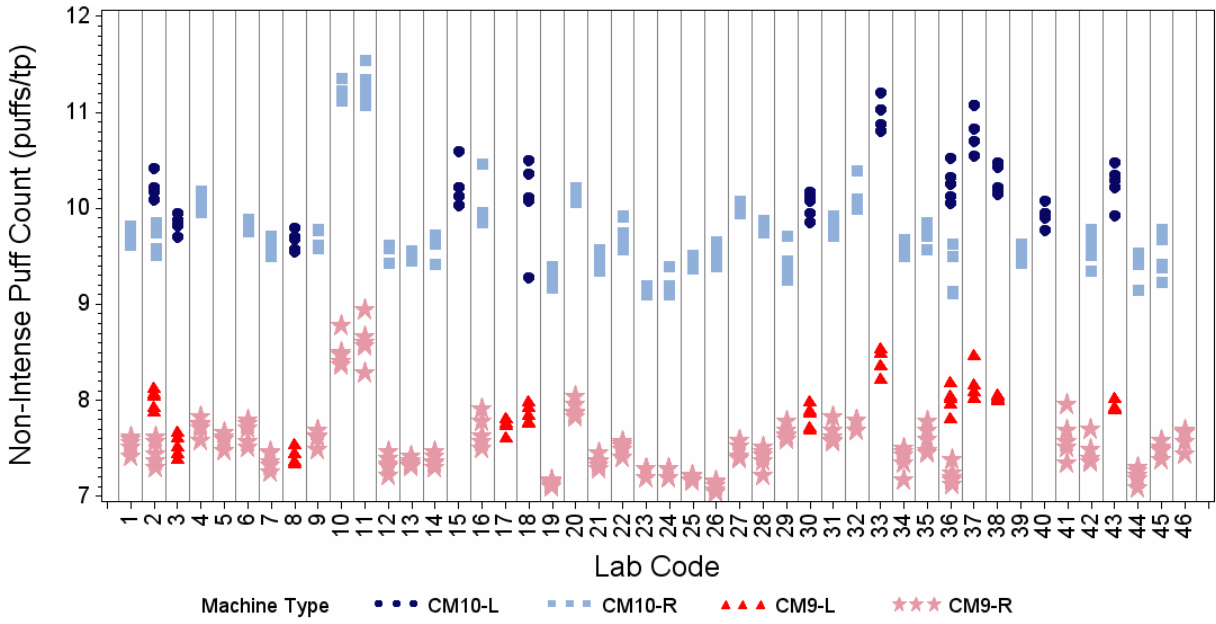












APPENDIX D – Graphs of Z-scores

