

# CORESTA Approved Monitor No. 9 (CM9)

## Use and Conditions

February 2019

This monitor test piece has been produced according to the provisions given in the International Standard, ISO 16055.

After manufacture, the monitor test piece has been analysed in annual surveys organised by the CORESTA “Routine Analytical Chemistry Sub-Group” by laboratories each equipped to analyse according to ISO 3308, 3402, 4387, 8243, 8454, 10315 and 10362. Between June 2018 and September 2018, 34 data sets were produced.

A statistical analysis of the analytical results from the 201 survey in accordance with ISO 5725, produced the following statistical results. A full statistical report may be obtained on the CORESTA website<sup>[1]</sup>.

Parameter	n	Mean	Repeatability limits			Reproducibility limits		
			S <sub>r</sub>	CV <sub>r</sub> %	r	S <sub>R</sub>	CV <sub>R</sub> %	R
Conditioned Wt mg	34	943,2	4,69	0,498	13,27	6,33	0,67	17,9
TPM mg/t.p.	31	16,98	0,34	2,00	0,96	0,55	3,25	1,56
Water mg/t.p.	33	1,61	0,16	9,54	0,45	0,32	19,03	0,91
Nicotine mg/t.p.	34	1,480	0,034	2,278	0,095	0,066	4,429	0,185
NFDPM mg/t.p.	32	13,82	0,28	2,04	0,80	0,50	3,62	1,42
CO mg/t.p.	32	13,06	0,36	2,78	1,03	0,63	4,86	1,79
Puff Count /t.p.	34	7,76	0,12	1,59	0,35	0,33	4,27	0,94

Values given in this table are based on the mean data from analysis of 20 test pieces. The smoking was performed with a fixed butt length of 33 mm.

Practical experience from previous monitor test pieces has shown the smoke yields to be stable for at least 4 years (or longer) under the condition that the test pieces are stored unopened and below +4 °C.

[1] Routine Analytical Chemistry Sub-Group - CORESTA Technical Report [RAC-187-CTR]: [2018 Collaborative Study of CORESTA Monitor 8 \(CM8\) and 9 \(CM9\) for the Determination of Test Piece Weight, TPM, Water, Nicotine, NFDPM, Carbon Monoxide and Puff Count Obtained under Mainstream ‘ISO’ and ‘Intense’ Smoking Regimes](#)

*When evaluating these results it should be remembered that the means given in the table are overall averages of results from all the participating smoking machine types, which include linear as well as rotary smoking machines and that these types of smoking machines again encompass a variety of modifications. Therefore the individual laboratory cannot expect – as also mentioned in ISO 16055 – to obtain results which match the means exactly (for NFDPM a difference of up to 20 % may be acceptable). This means that the average values from this information should not be used to construct control charts for the individual laboratory's smoking process control charts.*

Advice on the general use of the CORESTA monitor test piece can be found in ISO 16055.

In connection to the above mentioned smoking study the weight of the CM9 was determined after conditioning according to ISO 3402. The average weight was 943 mg per monitor test piece with a standard deviation of 4,69 mg per monitor (both values calculated on the basis of group weights of 20 monitor test pieces).

The monitor is available in units of 5000 test pieces through:

**Körber Technologies Instruments GmbH**

Spare Parts Department  
Schnackenburgallee 15  
D-22525 Hamburg  
Germany  
Tel: +49 40 85 31 380  
Fax: +49 40 850 56 00  
e-mail: [instruments@koerber.com](mailto:instruments@koerber.com)

**Cerulean**

Rockingham Drive  
Linford Wood East  
Milton Keynes MK14 6LY  
United Kingdom  
Tel: +44 1908 23 38 33  
Fax: +44 1908 23 53 33  
e-mail: [info@cerulean.com](mailto:info@cerulean.com)