OZONE ANALYZER INTERCOMPARISON
Thermo 49i CM08460046

intercomparison place : Bologna
intercomparison operator: Francescopiero Calzolari, Simonetta Montaguti
Transfer Standard: Thermo 49iPs s/n: 1404860524
Transfer Standard has been evaluated by ENPA on 1900-01-01 with SRP#15 giving
slope of 1.000 and intercept of -0.3
TS has been warmed-up for more then 12 hours and OA has been conditioning at
200ppb for more then 2 hour
OA has been evaluated at the following 9 concentration levels: 0, 15, 25, 50,
75, 80, 100, 125 e 150 ppb

OA and TS condition:
OA CM08460046 BKG=-0.2 ; Coeff=1.020
TS 1404860524 BKG=-0.3 ; Coeff=1.000
intercomparison start : 2024-01-18 16:23:00 ; intercomparison end : 2024-01-18
23:16:00
LinregressResult(slope=1.010163509684908, intercept=-0.3681661827418026,
rvalue=0.9999931133777447, pvalue=1.5400086448563022e-30,
stderr=0.0010822346263339923, intercept_stderr=0.09299468793666033)

Linear regression results OAmean = TSmean*slope + intercept:
TS Transfer Standard
OA O3 Analizer

slope   = 1.010164   slope_stderr   = 1.082e-03
intercept   = -0.368166   intercept_stderr = 9.299e-02
rsquare   = 0.999986   covariance   = 1.812e-20

TSmean: TS average [O3] for each calibration step
OAmean: OA average [O3] for each calibration step
Predicted = OAmean*slope + intercept
TSstd: TS standard deviation [O3] for each calibration step
OAstd: OA standard deviation [O3] for each calibration step
Residual = TS - predicted
Deviation = OA - TS

TSmean	TSstd	OAmean	OAstd	predicted	residual	deviation
74.664	0.127	74.040	0.128	74.424	0.239	-0.624
149.663	0.078	148.730	0.135	149.873	-0.210	-0.933
124.657	0.102	123.940	0.150	124.831	-0.174	-0.717
24.726	0.131	24.760	0.102	24.643	0.082	0.034
99.710	0.116	98.960	0.174	99.598	0.112	-0.750
79.690	0.086	79.160	0.128	79.596	0.094	-0.530
0.190	0.091	0.850	0.050	0.490	-0.300	0.660
49.766	0.080	49.500	0.082	49.635	0.131	-0.266
24.743	0.117	24.840	0.185	24.724	0.019	0.097
99.675	0.073	98.833	0.111	99.470	0.205	-0.842
124.698	0.060	123.986	0.236	124.878	-0.180	-0.712
14.643	0.042	15.012	0.093	14.797	-0.154	0.370
74.703	0.044	74.267	0.111	74.653	0.049	-0.436
99.648	0.085	98.925	0.109	99.562	0.085	-0.723

Unoise: OAstd average   = 0.128
Ulinearity: Residual standard deviation   = 0.170
Urepeat = sqrt(Unoise^2 + Ulinearity^2)   = 0.213
Udrift = sqrt(0.58^2+(0.0025*C)^2)   = 0.632
U = sqrt(Urepeat^2+Udrift^2)   = 0.666
C   = 100.0

compensation equation to obtain unbiased concentration
[O3unbiased]=([OA]*1.010)-0.368

Intercomparison 49i s/n CM08460046 date : 20240118