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 : 2024-01-19 07:24:00 ; intercomparison end : 2024-01-19
14:42:00
LinregressResult(slope=1.012692380195508, intercept=-0.5830908734453146,
rvalue=0.999977739628054, pvalue=8.282419663499854e-43,
stderr=0.0015502052332417463, intercept_stderr=0.12843431396927532)

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

slope   = 1.012692   slope_stderr   = 1.550e-03
intercept   = -0.583091   intercept_stderr = 1.284e-01
rsquare   = 0.999955   covariance   = 1.608e-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
-0.026	0.117	0.900	0.134	0.328	-0.354	0.926
74.714	0.066	73.340	0.220	73.688	1.026	-1.374
149.697	0.096	148.030	0.142	149.326	0.372	-1.667
124.677	0.084	123.620	0.125	124.606	0.071	-1.057
24.702	0.123	24.770	0.195	24.501	0.200	0.068
99.726	0.097	98.950	0.180	99.623	0.103	-0.776
79.730	0.077	79.200	0.173	79.622	0.108	-0.530
49.699	0.107	49.540	0.180	49.586	0.114	-0.159
14.680	0.110	14.930	0.127	14.536	0.144	0.250
99.693	0.138	98.970	0.155	99.643	0.050	-0.723
149.718	0.069	148.820	0.178	150.126	-0.408	-0.898
0.040	0.099	0.900	0.148	0.328	-0.289	0.860
49.718	0.107	49.450	0.120	49.495	0.224	-0.268
24.675	0.096	24.820	0.166	24.552	0.123	0.145
99.710	0.059	99.200	0.155	99.876	-0.166	-0.510
124.690	0.122	124.120	0.108	125.112	-0.422	-0.570
14.660	0.077	15.140	0.080	14.749	-0.089	0.480
74.708	0.101	74.430	0.142	74.792	-0.083	-0.278
99.716	0.071	99.340	0.102	100.018	-0.302	-0.376
79.703	0.107	79.550	0.206	79.977	-0.273	-0.153
0.111	0.115	0.830	0.110	0.257	-0.147	0.719

Unoise: OAstd average   = 0.150
Ulinearity: Residual standard deviation   = 0.327
Urepeat = sqrt(Unoise^2 + Ulinearity^2)   = 0.360

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Udrift = sqrt(0.58^2+(0.0025*C)^2)                    = 0.632
U = sqrt(Urepeat^2+Udrift^2)                          = 0.727
C                                                     = 100.0
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compensation equation to obtain unbiased concentration
[O3unbiased]=([OA]*1.013)-0.583

Intercomparison 49i s/n CM08460046 date : 20240119