

OZONE ANALYZER INTERCOMPARISON
 Thermo 49i CM08460046

intercomparison place : Lampedusa
 intercomparison operator: Maurizio Busetto, Damiano Sferlazzo
 Transfer Standard: Thermo 49iPs s/n: 1404860524
 Transfer Standard has been evaluated by NaN on NaN with SRP#15 giving slope of 0.9995 and intercept of -0.19
 TS has been warmed-up for more then 12 hours and OA has not been conditioning at 200ppb for more then 2 hour
 OA has been evaluated at the following 6 concentration levels: 0, 25, 50, 75, 100 e 125 ppb

OA and TS condition:
 OA CM08460046 BKG=-0.2 ; Coeff=1.020
 TS 1404860524 BKG=-0.3 ; Coeff=1.0
 intercomparison start : 2023-08-14 13:03:00 ; intercomparison end : 2023-08-14 20:25:00
 LinregressResult(slope=0.9863139729659509, intercept=0.332134307460052, rvalue=0.9999520205656721, pvalue=1.3427222394575894e-35, stderr=0.0023434134214209645, intercept_stderr=0.17065815809097343)

risultati regressione lineare $OA_{mean} = TS_{mean} \cdot slope + intercept$:
 TS Transfer Standard
 OA O3 Analyzer

slope = 0.986314 slope_stderr = 2.343e-03
 intercept = 0.332134 intercept_stderr = 1.707e-01
 rsquare = 0.999904 covariance = 7.881e-20

TSmean : media [O3] TS ogni step di calibrazione
 OAmean : media [O3] OA per ogni step di calibrazione. NB: OAmean \hat{A} ottenuta dalle misure dell'analizzatore riportate a slope=1.0 e bkg=0.0
 Predicted = TSmean*slope + intercept
 TSstd : standard deviation [O3] TS per ogni step di calibrazione
 OAstdev : standard deviation [O3] OA per ogni step di calibrazione
 Residual = TS - predicted
 Deviation = OA - TS

TSmean	TSstd	OAmean	OAstdev	predicted	residual	deviation
0.344	0.123	0.358	0.172	0.685	-0.341	0.014
25.004	0.037	24.051	0.155	24.054	0.950	-0.953
75.063	0.058	74.755	0.266	74.064	0.999	-0.308
50.023	0.074	49.929	0.397	49.578	0.445	-0.094
100.025	0.171	100.880	0.218	99.831	0.194	0.855
125.020	0.125	126.310	0.522	124.913	0.107	1.290
0.374	0.058	0.280	0.164	0.608	-0.234	-0.094
49.987	0.092	50.051	0.256	49.698	0.289	0.064
100.021	0.138	101.010	0.247	99.960	0.061	0.989
124.970	0.135	126.630	0.245	125.229	-0.259	1.660
24.974	0.089	25.147	0.246	25.135	-0.161	0.173
74.990	0.111	75.948	0.177	75.241	-0.251	0.958
0.363	0.157	0.367	0.245	0.694	-0.331	0.004
75.016	0.070	75.745	0.246	75.040	-0.024	0.729
124.950	0.112	127.060	0.229	125.653	-0.703	2.110
50.024	0.092	50.438	0.222	50.080	-0.056	0.414
25.018	0.103	25.136	0.147	25.124	-0.106	0.118
75.003	0.090	75.979	0.170	75.271	-0.268	0.976
0.372	0.050	0.355	0.186	0.682	-0.310	-0.018

Unoise : media 0Astd	= 0.237
Ulinearity : standard deviation Residual	= 0.431
Urepeat = sqrt(Unoise^2 + Ulinearity^2)	= 0.492
Udrift = sqrt(0.58^2+(0.0025*C)^2)	= 0.632
U = sqrt(Urepeat^2+Udrift^2)	= 0.801
C	= 100.0

compensation equation to obtain unbiased concentration
[O3unbiased]=[OA]*0.986)+0.332

Intercomparison 49i s/n CM08460046 date : 20230814

