

OZONE analyzerYZER INTERCOMPARISON  
 Thermo 49i 1214911088

Intercomparison place : Bologna  
 Intercomparison operator: Francescopiero Calzolari  
 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 5 concentration levels: 0, 25, 50, 75, 100 e 125 ppb

OA and TS condition:  
 OA 1214911088 BKG=0.0 ; Coeff=1.000  
 TS 1404860524 BKG=-0.3 ; Coeff=1.000

Intercomparison start : 2022-05-05 06:15:00 ;  
 Intercomparison end : 2022-05-06 05:58:00

risultati regressione lineare  $O_{Amean} = T_{Smean} \cdot slope + intercept$ :  
 TS Transfer Standard  
 OA O3 Analyzer

slope = 0.985512 slope\_stderr = 5.609e-04  
 intercept = -0.543049 intercept\_stderr = 4.693e-02  
 rsquare = 0.999994 covariance = 3.412e-21

TSmean : media [O3] TS ogni step di calibrazione  
 OAmean : media [O3] OA per ogni step di calibrazione.  
 predicted = (OAmean - intercept)/slope  
 TSstd : standard deviation [O3] TS per ogni step di calibrazione  
 OAstnd : standard deviation [O3] OA per ogni step di calibrazione  
 Residual = TSmean - predicted  
 Deviation = OAmean - TSmean

TSmean	TSstd	OAmean	OAstnd	predicted	residual	deviation
0.331	0.096	-0.332	0.455	0.214	0.117	-0.663
75.014	0.098	73.234	0.532	74.862	0.152	-1.780
149.987	0.062	147.295	0.254	150.011	-0.025	-2.692
125.032	0.087	122.639	0.730	124.993	0.039	-2.393
24.985	0.106	24.003	0.499	24.907	0.079	-0.983
99.998	0.114	97.942	0.329	99.933	0.065	-2.056
80.037	0.098	78.284	0.527	79.986	0.051	-1.752
49.982	0.094	48.779	0.646	50.047	-0.065	-1.203
14.977	0.120	14.154	0.551	14.913	0.064	-0.823
100.003	0.103	97.819	0.457	99.808	0.195	-2.184
150.006	0.132	147.245	0.694	149.961	0.045	-2.760
0.340	0.093	-0.141	0.584	0.408	-0.067	-0.482
50.003	0.121	48.565	0.441	49.830	0.173	-1.438
25.010	0.093	24.228	0.541	25.135	-0.125	-0.782
100.002	0.085	98.076	0.479	100.069	-0.067	-1.926
124.959	0.150	122.768	0.476	125.124	-0.165	-2.191
14.984	0.096	14.166	0.420	14.925	0.060	-0.819
74.992	0.126	73.542	0.331	75.174	-0.181	-1.451
99.999	0.084	97.968	0.375	99.959	0.039	-2.031
80.011	0.074	78.535	0.461	80.241	-0.230	-1.476
0.241	0.112	-0.154	0.427	0.394	-0.153	-0.396

Unoise : media OAstd	= 0.486
Ulinearity : standard deviation Residual	= 0.122
Urepeat = sqrt(Unoise^2 + Ulinearity^2)	= 0.501
Udrift = sqrt(0.58^2+(0.0025*C)^2)	= 0.735
U = sqrt(Urepeat^2+Udrift^2)	= 0.889
C	= 100.0

compensation equation to obtain unbiased concentration  
[O3unbiased]=([OA]+0.839)/0.986)

New OA coefficients  
slope=1.015  
bkg=0.851

# Intercomparison 49i s/n 1214911088 date : 20220506

