

Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (%FS)	Valore atteso	Esito
	80	2.5	3.125	3.125	POSITIVO

RAPPORTO DI QUALIFICA RQUAL N° 6664-P-QUAL-446-2021

Procedura di riferimento: P-QUAL-446  
Condizioni ambientali influenti: Temperatura 17 ± 5 °C  
Luogo: Casanova Lonati

Data: 05/01/2021  
Operatore: Modesto Oliviero  
Area: APC  
Scadenza qualifica: 31/01/2022

Bombole	Gas	Concentrazione	Unità di misura	Costruttore	N° certificato	Data certificato	Scadenza bombola
	O <sub>2</sub>	20	%	Siad	LAT 143 W080020	16/10/2020	10/07/2025
	CO <sub>2</sub>	24	%	Siad	LAT 143 W121819	04/02/2020	22/01/2023
	CO	800	ppm	Siad	LAT 143 W122019	03/02/2020	27/01/2023
	NO	400	ppm	Siad	LAT 143 W121919	31/01/2020	20/01/2022
	NO <sub>2</sub>						
	SO <sub>2</sub>	400	ppm	Siad	LAT 143 W080120	12/10/2020	05/10/2022

Diluatore	Costruttore	Modello	SIN	Data calibrazione	Codice interno	Scadenza taratura
	LNI	Sonimix 2106-1024	7188	06/11/2018	8939	Novembre 21

	Gas	Codice interno	Costruttore	Modello	Fondo Scala	Unità di misura scala
	O <sub>2</sub>	6664	Horiba	PG-350	25	%
	CO <sub>2</sub>	6664	Horiba	PG-350	30	%
	CO	6664	Horiba	PG-350	500	ppm
	NO	6664	Horiba	PG-350	500	ppm
	SO <sub>2</sub>	6664	Horiba	PG-350	500	ppm

Efficienza del convertitore	Efficienza (%)	Criterio di accettabilità	Esito
	99.7	> 95 %	POSITIVO

Linearità	Gas misurato	Residuo relativo Max %vol (solo O <sub>2</sub> )	Residuo relativo Max %	Criteri accettabilità	Scostamento Max % Relativo F.S.	Criteri accettabilità	Esito
	O <sub>2</sub>	0.02	0.1	<0,3%vol < 5% F.S.	0.44	< 2% F.S.	POSITIVO
	CO <sub>2</sub>	-	0.2	< 5% F.S.	0.50	< 2% F.S.	POSITIVO
	CO	-	0.2	< 2% F.S.	0.40	< 2% F.S.	POSITIVO
	NO	-	0.0	< 2% F.S.	0.04	< 2% F.S.	POSITIVO
	SO <sub>2</sub>	-	0.1	< 5% F.S.	0.40	< 2% F.S.	POSITIVO

Ripetibilità	Gas misurato	Sr (% F.S.)	Criteri accettabilità	Esito
	O <sub>2</sub>	0.11	< 2% F.S.	POSITIVO
	CO <sub>2</sub>	0.20	< 2% F.S.	POSITIVO
	CO	0.02	< 2% F.S.	POSITIVO
	NO	0.08	< 2% F.S.	POSITIVO
	SO <sub>2</sub>	0.02	< 2% F.S.	POSITIVO

LabAnalysis S.r.l.  
Via Europa 5  
27041 Casanova Lonati (PV)

Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (%FS)	Valore atteso	Esito
	80	2.5	3.125	3.125	POSITIVO

Determinazione efficienza convertitore

L'efficienza del convertitore viene calcolata in accordo a quanto indicato in Allegato alla norma UNI EN 14792.

Strumento: Horiba  
Modello: PG-350  
Cod.Int.: 6664  
Data: 05/01/2021

Bombola				
Costruttore	Certif. N°	del	Scadenza	

Test 1		
(NO <sub>x</sub> ) <sub>u</sub> =	20.59	
(NO) <sub>u</sub> =	0.06	
(NO <sub>2</sub> ) <sub>i</sub> =	20.57	
Efficienza convertitore:		99.8 %

Test 2		
(NO <sub>x</sub> ) <sub>u</sub> =	20.58	
(NO) <sub>u</sub> =	0.06	
(NO <sub>2</sub> ) <sub>i</sub> =	20.59	
Efficienza convertitore:		99.7 %

Test 3		
(NO <sub>x</sub> ) <sub>u</sub> =	20.56	
(NO) <sub>u</sub> =	0.07	
(NO <sub>2</sub> ) <sub>i</sub> =	20.58	
Efficienza convertitore:		99.6 %

Efficienza media del convertitore: 99.7 %

Operatore: Modesto Oliviero  
Data: 05/01/2021

Controllo QAT: Fulvio Ghisolfi  
Data: 05/01/2021

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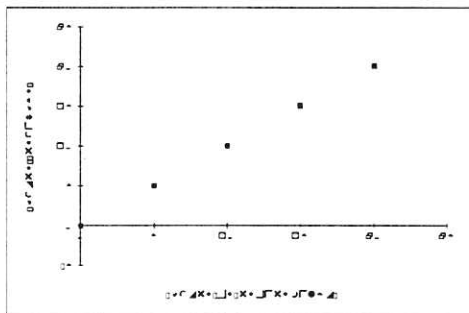
Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (%FS)	Valore atteso	Esito
	80	2.5	3.125	3.125	PG30 (T=2)

Strumento: Horiba  
Modello: PG-350  
Cod Int.: 6664  
Data: 05/01/2021

Verifica linearità O<sub>2</sub>

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori rif. valori att.	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Rispetto al fondo scala
	%	%	%	%	%	%	%	%	%	%	%	%
1	0.00	-0.02	0.00	-0.03	0.0	0.0	0.0	0.0	25	20.00	0.0	0.0
2	5.00	5.00	5.00	5.01	5.0	0.0	0.0	0.0	25	20.00	25.0	20.0
3	10.00	9.99	10.00	10.05	10.0	0.0	0.1	0.1	25	20.00	50.0	50.0
4	15.00	15.11	15.11	15.00	15.1	0.0	0.1	0.1	25	20.00	75.0	75.0
5	20.00	20.06	20.10	20.05	20.1	0.0	0.0	0.1	25	20.00	100.0	100.0
6	0.00	-0.03	-0.03	-0.03	0.0	0.0	0.0	0.0	25	20.00	0.0	0.0

Deviazioni
0.0
0.0
0.0
0.0
0.1
0.1
0.1
0.0



Bombola	Certif. N°	del	Scadenza
Costruttore: Sad	KT 143 V060X	15/10/20	10/07/25

Sr (%)	Sc	Sb
0.07164	0.0109	0.0009

R	a	b	n
1.0000	-0.0242	1.0052	18

x <sub>i</sub>	y <sub>i</sub>	x <sub>i</sub> <sup>2</sup>	y <sub>i</sub> (retta)	Residui	Residui <sup>2</sup>	(x <sub>i</sub> -x <sub>media</sub> )	(x <sub>i</sub> -x <sub>media</sub> ) <sup>2</sup>	(y <sub>i</sub> -y <sub>media</sub> )	(y <sub>i</sub> -y <sub>media</sub> ) <sup>2</sup>	(x <sub>i</sub> -x <sub>media</sub> )(y <sub>i</sub> -y <sub>media</sub> )
0.0	0.0	0	-0.024166667	0.02	1.73611E-05	-8.333333333	69.44444444	-8.3322222	70.947240	-69.7851352
5.0	5.0	25	5.001666667	0.00	2.77777E-06	-3.333333333	11.11111111	-3.3522222	11.2373938	11.7407407
10.0	10.0	100	10.0275	0.04	0.00140625	1.666666667	2.777777778	1.637777778	2.68231905	2.73952963
15.0	15.1	225	15.05333333	0.05	0.002177778	6.666666667	44.44444444	6.747777778	45.5295049	44.9819519
20.0	20.1	400	20.07916667	0.02	0.00043889	11.66666667	135.1111111	11.72777778	137.0706	136.5907407
0.0	0.0	0	-0.024166667	0.01	3.40278E-05	-8.333333333	69.44444444	-8.3822222	70.261494	-69.85185185
0.0	0.0	0	-0.024166667	0.02	0.000584722	-8.333333333	69.44444444	-8.3522222	69.759616	-69.80185185
5.0	5.0	25	5.001666667	0.00	2.77777E-06	-3.333333333	11.11111111	-3.3522222	11.2373938	11.7407407
10.0	10.0	100	10.0275	0.03	0.00075625	1.666666667	2.777777778	1.647777778	2.7151716	2.745796706
15.0	15.1	225	15.05333333	0.06	0.003211111	6.666666667	44.44444444	6.757777778	45.6675005	45.05185185
20.0	20.1	400	20.07916667	0.02	0.00043889	11.66666667	135.1111111	11.74777778	138.010763	137.2674074
0.0	0.0	0	-0.024166667	0.01	3.40278E-05	-8.333333333	69.44444444	-8.3822222	70.261494	-69.85185185
0.0	0.0	0	-0.024166667	0.01	3.40278E-05	-8.333333333	69.44444444	-8.3822222	70.261494	-69.85185185
5.0	5.0	25	5.001666667	0.01	6.84444E-05	-3.333333333	11.11111111	-3.3422222	11.1704494	11.74074074
10.0	10.1	100	10.0775	0.02	0.00060625	1.666666667	2.777777778	1.697777778	2.88244938	2.87962963
15.0	15.0	225	15.05333333	0.05	0.00140625	6.666666667	44.44444444	6.647777778	44.192494	44.11851352
20.0	20.1	400	20.07916667	0.02	0.00043889	11.66666667	135.1111111	11.72777778	137.0706	136.5907407
0.0	0.0	0	-0.024166667	0.01	3.40278E-05	-8.333333333	69.44444444	-8.3822222	70.261494	-69.85185185

x centroide	y centroide	E x <sub>i</sub> <sup>2</sup>
8.333333333	8.35722222	2750

E residui <sup>2</sup>
0.017683333

E (x <sub>i</sub> -x <sub>media</sub> ) <sup>2</sup>
1000

E (y <sub>i</sub> -y <sub>media</sub> ) <sup>2</sup>	E (x <sub>i</sub> -x <sub>media</sub> )(y <sub>i</sub> -y <sub>media</sub> )
1010.37291	1005.166667

Verifica ripetibilità O<sub>2</sub>

N° Prova	Valore ottenuto
1	20.02
2	19.99
3	20.00
4	19.99
5	20.00
6	20.00

Scarto tipo calcolato: Sr = 0.03

Operatore: Modesto Olivero  
Data: 05/01/2021

Controllo QAT: Fulvio Ghisotti  
Data: 05/01/2021

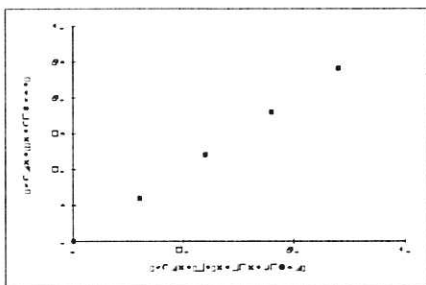
*Fulvio Ghisotti*

Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (N°S)	Valore atteso	Esito
	30	25	3128	3128	POSITIVO

Strumento: Horiba  
Modello: PG-350  
Cod. Int: 6994  
Data: 05/01/2021

#### Verifica linearità CO<sub>2</sub>

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori rif. valore att.	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Proprietà al fondo scala	Deviazioni
1	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	30	24.00	0.0	0.0	0.0
2	6.00	6.00	6.00	6.00	6.0	0.0	0.0	0.0	30	24.00	24.0	24.0	0.0
3	12.00	12.00	12.00	12.00	12.0	0.0	0.0	0.0	30	24.00	50.0	40.0	0.0
4	18.00	18.00	18.00	18.00	18.0	0.0	0.0	0.0	30	24.00	75.0	60.0	0.0
5	24.00	24.00	24.00	24.00	24.0	0.0	0.0	0.0	30	24.00	100.0	80.0	0.0
6	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	30	24.00	0.0	0.0	0.0



Bombola	Centr. N°	del	scadenza
Construttore	NT 143 W1219	04/02/2020	25/01/2023

Serie	Sa	Sb
0.0000	0.0117	0.0009

R	a	b	n
1.0000	-0.0058	1.0043	18

n	y	y <sup>2</sup>	Y (media)	Residui	Residui <sup>2</sup>	(y-y <sub>centro</sub> )	(y-y <sub>centro</sub> ) <sup>2</sup>	(Y-y <sub>centro</sub> )	(Y-y <sub>centro</sub> ) <sup>2</sup>	(y-y <sub>centro</sub> )/S <sub>y</sub>	(y-y <sub>centro</sub> )/S <sub>y</sub>
0.0	0.0	0	0.00000000	0.01	3.40278E-05	-10	100	-10.000000	100.000000	-10.000000	-10.000000
6.0	6.0	36	0.00000000	-0.03	0.00000011	-4	16	-4.000000	16.000000	-4.000000	-4.000000
12.0	12.0	144	0.00000000	0.01	0.00000009	2	4	2.000000	4.000000	2.000000	2.000000
18.0	18.0	324	0.00000000	-0.07	0.00490079	6	36	6.000000	36.000000	6.000000	6.000000
24.0	24.0	576	0.00000000	0.00	1.49644E-05	14	196	14.000000	196.000000	14.000000	14.000000
0.0	0.0	0	0.00000000	0.01	3.40278E-05	-10	100	-10.000000	100.000000	-10.000000	-10.000000
0.0	0.0	0	0.00000000	0.01	3.40278E-05	-10	100	-10.000000	100.000000	-10.000000	-10.000000
6.0	6.0	36	0.00000000	-0.02	0.00000079	-4	16	-4.000000	16.000000	-4.000000	-4.000000
12.0	12.0	144	0.00000000	0.06	0.00000094	2	4	2.000000	4.000000	2.000000	2.000000
18.0	18.0	324	0.00000000	-0.05	0.00000011	6	36	6.000000	36.000000	6.000000	6.000000
24.0	24.0	576	0.00000000	0.05	0.00000029	14	196	14.000000	196.000000	14.000000	14.000000
0.0	0.0	0	0.00000000	0.01	3.40278E-05	-10	100	-10.000000	100.000000	-10.000000	-10.000000
0.0	0.0	0	0.00000000	0.01	3.40278E-05	-10	100	-10.000000	100.000000	-10.000000	-10.000000
6.0	6.0	36	0.00000000	-0.02	0.00000079	-4	16	-4.000000	16.000000	-4.000000	-4.000000
12.0	12.0	144	0.00000000	0.03	0.00000006	2	4	2.000000	4.000000	2.000000	2.000000
18.0	18.0	324	0.00000000	-0.02	0.00000011	6	36	6.000000	36.000000	6.000000	6.000000
24.0	24.0	576	0.00000000	0.01	0.00000009	14	196	14.000000	196.000000	14.000000	14.000000
0.0	0.0	0	0.00000000	0.01	3.40278E-05	-10	100	-10.000000	100.000000	-10.000000	-10.000000

x centrato	y centrato	S <sub>y</sub>
10	10.000000	3.40

S <sub>resid</sub>
0.0178

S <sub>(y-y<sub>centro</sub>)</sub>
14.0

S <sub>(y-y<sub>centro</sub>)/S<sub>y</sub></sub>	S <sub>(y-y<sub>centro</sub>)/S<sub>y</sub></sub>
1.6577834	1.6577834

#### Verifica ripetibilità CO<sub>2</sub>

N° Prova	Valore ottenuto
1	24.00
2	24.00
3	24.15
4	24.12
5	24.00
6	24.10

Scarto tipo calcolato: Sr = 0.06

Operatore: Modesto Olivero  
Data: 05/01/2021

Controllo GAT

Fulvio Ghiselli  
Data: 05/01/2021

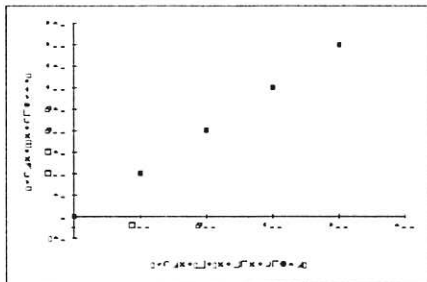
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Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (FUS)	Valore atteso	Esito
	50	2.5	3.125	-0.150	PG01300

Strumento: Horiba  
Modello: PG-350  
Cod. Int.: 6054  
Data: 05/01/2021

#### Verifica linearità CO

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residuo	Residuo Relativo	Deviazione valori rif. valori ril.	Fondo scala armonizzato	Conc. Bombola utilizzata	Bombola utilizzata	Rapporto al Fondo scala	Deviazioni
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	%	%	
1	0.00	0.00	0.00	0.00	0.0	-0.2	0.0	0.0	500	800.00	0.0	0.0	0.0 0.0 0.0
2	100.00	101.00	99.96	100.00	100.0	0.0	0.0	1.0	500	800.00	12.5	20.0	1.0 0.0 0.0
3	200.00	200.00	200.00	201.49	201.2	1.2	0.6	2.0	500	800.00	25.0	40.0	0.0 2.0 1.6
4	300.00	300.20	300.30	301.00	300.5	0.5	0.0	1.0	500	800.00	37.5	60.0	0.2 0.3 1.0
5	400.00	400.06	400.09	400.20	400.1	-0.1	0.1	0.2	500	800.00	50.0	80.0	0.1 0.0 0.2
6	0.00	0.00	0.00	0.00	0.0	-0.2	0.0	0.0	500	800.00	0.0	0.0	0.0 0.0 0.0



Bombola	Contenitore	Cont. N°	del	scadenza
Sad	NT 143	W120	03/02/2020	27/01/2023

Safe	SA	SB
0.4542	0.2267	0.3019

R	a	b	n
1.0000	0.7406	1.0000	18

%	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub> (media)	Residuo	Residuo <sup>2</sup>	(Y <sub>1</sub> -Y <sub>2</sub> ) <sup>2</sup>	(Y <sub>1</sub> -Y <sub>3</sub> ) <sup>2</sup>	(Y <sub>2</sub> -Y <sub>3</sub> ) <sup>2</sup>	(Y <sub>1</sub> -Y <sub>2</sub> )/Y <sub>3</sub>	(Y <sub>1</sub> -Y <sub>3</sub> )/Y <sub>3</sub>	(Y <sub>2</sub> -Y <sub>3</sub> )/Y <sub>3</sub>
0.0	0.0	0	0.226633333	-0.22	0.048577778	198.9999997	27777.77778	-147.02	27895.9004	27895.99967	
100.0	101.0	99.96	100.5033333	0.50	0.250000000	-98.9999997	4444.44444	-26.02	4368.4544	4443.33333	
200.0	200.0	200.00	200.3333333	-0.33	0.112222222	33.3333333	1111.11111	33.20	1108.8901	1109.33333	
300.0	300.2	300.00	300.4500000	-0.25	0.062500000	133.3333333	17777.77778	133.18	17791.3126	17797.33333	
400.0	400.1	400.00	400.5333333	-0.53	0.280900000	233.3333333	54444.44444	233.14	54007.6418	54171	
0.0	0.0	0	0.226633333	-0.22	0.048577778	-198.9999997	27777.77778	-147.02	27895.9004	27895.99967	
100.0	100.0	100.00	100.3033333	-0.30	0.090000000	-98.9999997	4444.44444	-26.04	4404.3015	4409.33333	
200.0	202.0	200.00	200.7333333	1.73	2.992900000	33.3333333	1111.11111	34.98	1120.8004	1120	
300.0	300.3	300.00	300.4500000	-0.45	0.202500000	133.3333333	17777.77778	133.78	17793.6664	17797.99967	
400.0	400.0	400.00	400.5333333	-0.54	0.291600000	233.3333333	54444.44444	232.99	54279.9004	54302	
0.0	0.0	0	0.226633333	-0.22	0.048577778	-198.9999997	27777.77778	-147.02	27895.9004	27895.99967	
0.0	0.0	0	0.226633333	-0.22	0.048577778	-198.9999997	27777.77778	-147.02	27895.9004	27895.99967	
100.0	100.0	100.00	100.3033333	-0.30	0.090000000	-98.9999997	4444.44444	-26.02	4404.3015	4409.33333	
200.0	201.6	200.00	200.7333333	1.73	2.992900000	33.3333333	1111.11111	34.98	1120.8004	1120.99967	
300.0	301.0	300.00	300.4500000	-0.45	0.202500000	133.3333333	17777.77778	133.99	17800.4404	17804	
400.0	400.2	400.00	400.5333333	-0.54	0.291600000	233.3333333	54444.44444	233.18	54172.8126	54195.99967	
0.0	0.0	0	0.226633333	-0.22	0.048577778	-198.9999997	27777.77778	-147.02	27895.9004	27895.99967	

x centrato	y centrato	Z <sub>1</sub>	Z <sub>2</sub>	Z <sub>3</sub>	Z <sub>4</sub>	Z <sub>5</sub>
1.0000000	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Verifica ripetibilità CO	N° Prova	Valore ottenuto
1	400.10	
2	400.30	
3	400.30	
4	400.00	
5	400.00	
6	400.10	

Scarto tipo calcolato: Sr = 8.12

Operatore: Modesto Oliviero  
Data: 05/01/2021

Controllo GAT

Fuoco Chiodi  
Data: 05/01/2021

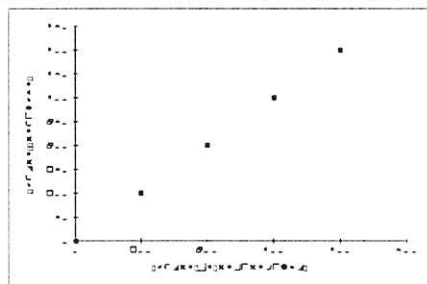
Verifica legge di calcolo	Fondo scala	Scarto tipo	Sr (CV %)	Valore atteso	Esito
	80	2.5	3.125	3.125	PCP/150

Strumento  
Modello  
Cod. Int.  
Data

Horiba  
PG-350  
9664  
05/01/2021

#### Verifica linearità NO

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residuo	Residuo Relativo	Deviazione valori rilevati	Fondo scala arrotondato	Conc. bombola utilizzata	Bombola utilizzata	Rispetto al fondo scala	Deviazioni
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	%
1	0.00	0.00	0.10	0.00	0.0	0.0	0.0	0.1	500	400.00	0.0	0.0	0.0
2	100.00	80.00	100.10	100.10	100.1	0.0	0.0	0.1	500	400.00	25.0	20.0	0.0
3	200.00	200.10	200.20	199.99	200.1	0.0	0.0	0.2	500	400.00	50.0	40.0	0.1
4	300.00	300.20	300.10	299.98	300.1	0.0	0.0	0.2	500	400.00	75.0	60.0	0.2
5	400.00	400.00	399.99	400.20	400.1	0.0	0.0	0.2	500	400.00	100.0	80.0	0.2
6	0.00	0.10	0.10	0.00	0.1	0.0	0.0	0.1	500	400.00	0.0	0.0	0.1



Bombola	Cont. N°	dat	scadenza
Gas	AT 143 W1219	31/01/2020	30/01/2022

Sr/x	Sr	Sr
0.0000	0.0000	0.0000

R	a	b	n
1.0000	0.0079	1.0001	18

x	y	x²	y²	xy	Residuo	Residuo²	(x-xm)²	(x-xm)²	(y-ym)²	(y-ym)²	(x-xm)(y-ym)	(x-xm)(y-ym)
0.0	0.0	0.0000	0.0000	0.0000	-0.06	0.0036	-199.9999997	27777.77778	-199.9999997	27800.74549	-27780.26029	-27780.26029
100.0	100.0	10000.00	10000.00	10000.00	-0.07	0.0049	-99.9999997	4444.44444	-99.9999997	4444.44444	-4444.44444	-4444.44444
200.0	200.0	40000.00	40000.00	40000.00	0.03	0.0009	33.3333333	1111.11111	33.3333333	1111.11111	1111.11111	1111.11111
300.0	300.0	90000.00	90000.00	90000.00	0.12	0.0144	133.3333333	17777.77778	133.3333333	17777.77778	17777.77778	17777.77778
400.0	400.0	160000.00	160000.00	160000.00	-0.08	0.0064	233.3333333	54444.44444	-233.3333333	54444.44444	-54444.44444	-54444.44444
0.0	0.1	0.0000	0.0100	0.0000	0.04	0.0016	-199.9999997	27777.77778	-199.9999997	27800.74549	-27780.26029	-27780.26029
100.0	100.1	10000.00	10020.01	10010.00	0.04	0.0016	-99.9999997	4444.44444	-99.9999997	4444.44444	-4444.44444	-4444.44444
200.0	200.2	40000.00	40080.04	40040.00	0.13	0.0169	33.3333333	1111.11111	33.3333333	1111.11111	1111.11111	1111.11111
300.0	300.1	90000.00	90060.01	90030.00	0.02	0.0004	133.3333333	17777.77778	133.3333333	17777.77778	17777.77778	17777.77778
400.0	400.2	160000.00	160560.04	160080.00	-0.10	0.0100	233.3333333	54444.44444	-233.3333333	54444.44444	-54444.44444	-54444.44444
0.0	0.1	0.0000	0.0100	0.0000	0.04	0.0016	-199.9999997	27777.77778	-199.9999997	27800.74549	-27780.26029	-27780.26029
100.0	100.1	10000.00	10020.01	10010.00	0.04	0.0016	-99.9999997	4444.44444	-99.9999997	4444.44444	-4444.44444	-4444.44444
200.0	200.2	40000.00	40080.04	40040.00	0.13	0.0169	33.3333333	1111.11111	33.3333333	1111.11111	1111.11111	1111.11111
300.0	300.1	90000.00	90060.01	90030.00	0.02	0.0004	133.3333333	17777.77778	133.3333333	17777.77778	17777.77778	17777.77778
400.0	400.2	160000.00	160560.04	160080.00	-0.10	0.0100	233.3333333	54444.44444	-233.3333333	54444.44444	-54444.44444	-54444.44444
0.0	0.1	0.0000	0.0100	0.0000	0.04	0.0016	-199.9999997	27777.77778	-199.9999997	27800.74549	-27780.26029	-27780.26029
100.0	100.1	10000.00	10020.01	10010.00	0.04	0.0016	-99.9999997	4444.44444	-99.9999997	4444.44444	-4444.44444	-4444.44444
200.0	200.2	40000.00	40080.04	40040.00	0.13	0.0169	33.3333333	1111.11111	33.3333333	1111.11111	1111.11111	1111.11111
300.0	300.1	90000.00	90060.01	90030.00	0.02	0.0004	133.3333333	17777.77778	133.3333333	17777.77778	17777.77778	17777.77778
400.0	400.2	160000.00	160560.04	160080.00	-0.10	0.0100	233.3333333	54444.44444	-233.3333333	54444.44444	-54444.44444	-54444.44444
0.0	0.1	0.0000	0.0100	0.0000	0.04	0.0016	-199.9999997	27777.77778	-199.9999997	27800.74549	-27780.26029	-27780.26029

x centrato	y centrato	x²
-199.9999997	-27780.26029	39999.99998

Residuo²
0.0036

(x-xm)²
27777.77778

(y-ym)²	(x-xm)(y-ym)
27800.74549	-27780.26029

#### Verifica ripetibilità NO

N° Prova	Valore ottenuto
1	401.00
2	399.00
3	399.00
4	400.10
5	400.20
6	400.30

Scarto tipo calcolato: Sr = 0.36

Operatore  
Data

Modello  
Data

Corrente  
Data

Fuoco  
Data

05/01/2021

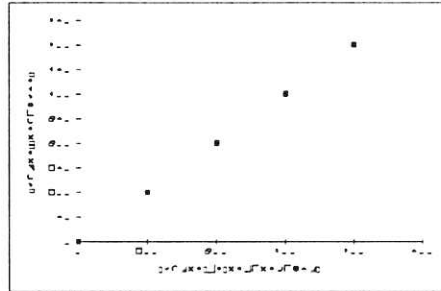
Fondo scala	Scarto tipo	Sr (N°S)	Valore atteso	Esito
80	2.5	3.125	3.125	Passo

Strumento: Horiba  
Modello: PG-350  
Cod. Int.: 6664  
Data: 05/01/2021

#### Verifica linearità SO<sub>2</sub>

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori re valori re	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Rispetto al fondo scala
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	%
1	0.0	0.00	0.10	0.00	0.0	0.0	0.0	0.1	500	400.00	0.0	0.0
2	100.00	100.00	99.98	100.10	100.0	-0.2	0.0	0.1	500	400.00	25.0	25.0
3	200.00	199.99	201.00	200.10	200.0	0.0	0.0	1.0	500	400.00	50.0	40.0
4	300.00	301.00	302.00	300.00	301.0	0.5	0.1	2.0	500	400.00	75.0	60.0
5	400.00	401.00	400.00	399.98	400.0	-0.3	0.1	1.0	500	400.00	100.0	80.0
6	0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.0	500	400.00	0.0	0.0

Deviazioni		
0.0	0.1	0.0
0.0	0.0	0.1
0.0	1.0	0.1
1.0	2.0	0.0
1.0	0.0	0.0
0.0	0.0	0.0



Bombola			
Contributore	Certif. N°	del	scadenza
Sad	NT 143 W0601	12/10/2020	05/10/2022

Spk	Sp	Sp
0.5263	0.1868	0.0008

R	a	b	n
1.0000	0.0237	1.0016	18

X	Y	X²	Y (retta)	Residui	Residui²	(X-Xm)²	(Y-Ym)²	(X-Xm)·(Y-Ym)	(X-Xm)²	(Y-Ym)²	(X-Xm)·(Y-Ym)
0.0	0.0	0.0000	0.0237	-0.0237	0.000562	-196.666667	27777.7778	-196.666667	27777.7778	27876.0625	-27876.0625
100.0	100.0	10000.00	100.1845	-0.1845	0.000340	-4444.4444	4444.4444	-4444.4444	4444.4444	4444.4444	-4444.4444
200.0	200.0	40000.00	200.34526	-0.34526	0.000119	-33.333333	1111.1111	-33.333333	1111.1111	1111.1111	-1111.1111
300.0	301.0	90000.00	300.506	0.49	0.2401	133.333333	17777.7778	133.333333	17777.7778	17777.7778	17777.7778
400.0	401.0	160000.00	400.66675	0.33	0.1089	233.333333	54444.4444	233.333333	54444.4444	54444.4444	54444.4444
0.0	0.0	0.0000	0.0237	-0.0237	0.000562	-196.666667	27777.7778	-196.666667	27777.7778	27876.0625	-27876.0625
100.0	100.0	10000.00	100.1845	-0.1845	0.000340	-4444.4444	4444.4444	-4444.4444	4444.4444	4444.4444	-4444.4444
200.0	201.0	40000.00	200.34526	-0.34526	0.000119	-33.333333	1111.1111	-33.333333	1111.1111	1111.1111	-1111.1111
300.0	302.0	90000.00	300.506	0.49	0.2401	133.333333	17777.7778	133.333333	17777.7778	17777.7778	17777.7778
400.0	400.0	160000.00	400.66675	-0.66675	0.444444	233.333333	54444.4444	-233.333333	54444.4444	54444.4444	-54444.4444
0.0	0.0	0.0000	0.0237	-0.0237	0.000562	-196.666667	27777.7778	-196.666667	27777.7778	27876.0625	-27876.0625
100.0	100.0	10000.00	100.1845	-0.1845	0.000340	-4444.4444	4444.4444	-4444.4444	4444.4444	4444.4444	-4444.4444
200.0	201.0	40000.00	200.34526	-0.34526	0.000119	-33.333333	1111.1111	-33.333333	1111.1111	1111.1111	-1111.1111
300.0	300.0	90000.00	300.506	-0.506	0.256036	133.333333	17777.7778	-133.333333	17777.7778	17777.7778	-17777.7778
400.0	400.0	160000.00	400.66675	-0.66675	0.444444	233.333333	54444.4444	-233.333333	54444.4444	54444.4444	-54444.4444
0.0	0.0	0.0000	0.0237	-0.0237	0.000562	-196.666667	27777.7778	-196.666667	27777.7778	27876.0625	-27876.0625

x centrato	y centrato	E x²	E y²	E (x-y)²	E (x-y)²	E (x-y)²	E (x-y)²
108.00000	108.00000	11664.0000	11664.0000	0.00000	0.00000	0.00000	0.00000

#### Verifica ripetibilità SO<sub>2</sub>

N° Prova	Valore ottenuto
1	400.00
2	399.99
3	400.10
4	399.98
5	400.20
6	400.10

Scarto tipo calcolato: Sr =

Operatore: Modesto Oliverio  
Data: 05/01/2021

Controllo: DAT  
Data: 05/01/2021

Firma