

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° 3458-P-QUAL-446-2021

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

Data: 11/01/2021
Operatore: Modesto Oliviero
Area: APC
Scadenza qualifica: 31/01/2022

Bombole

Gas	Concentrazione	Unità di misura	Costruttore	N° certificato	Data certificato	Scadenza bombola
O ₂	20	%	Siad	LAT 143 W080020	16/10/2020	10/07/2025
CO ₂	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 ₂						
SO ₂	400	ppm	Siad	LAT 143 W080120	12/10/2020	05/10/2022

Diluitore

Costruttore	Modello	S/N	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 ₂	3458	Horiba	PG-250	25	%
CO ₂	3458	Horiba	PG-250	20	%
CO	3458	Horiba	PG-250	500	ppm
NO	3458	Horiba	PG-250	500	ppm
SO ₂	3458	Horiba	PG-250	500	ppm

Efficienza del convertitore

Efficienza (%)	Criterio di accettabilità	Esito
99.6	> 95 %	POSITIVO

Linearità

Gas misurato	Residuo relativo Max %vol (solo O ₂)	Residuo relativo Max %	Criteri accettabilità	Scostamento Max % Relativo F.S.	Criteri accettabilità	Esito
O ₂	0.04	0.2	<0,3%vol < 5% F.S.	0.48	< 2% F.S.	POSITIVO
CO ₂	-	0.2	< 5% F.S.	0.55	< 2% F.S.	POSITIVO
CO	-	0.1	< 2% F.S.	0.26	< 2% F.S.	POSITIVO
NO	-	0.1	< 2% F.S.	0.40	< 2% F.S.	POSITIVO
SO ₂	-	0.0	< 5% F.S.	0.20	< 2% F.S.	POSITIVO

Ripetibilità

Gas misurato	Sr (% F.S.)	Criteri accettabilità	Esito
O ₂	0.24	< 2% F.S.	POSITIVO
CO ₂	0.28	< 2% F.S.	POSITIVO
CO	0.01	< 2% F.S.	POSITIVO
NO	0.09	< 2% F.S.	POSITIVO
SO ₂	0.11	< 2% F.S.	POSITIVO

Operatore: Modesto Oliviero
Data: 11/01/2021

Controllo QAT: Fulvio Ghisolfi
Data: 11/01/2021

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-250
Cod.Int.: 3458
Data: 11/01/2021

Bombola				
Costruttore	Certif. N°	del	Scadenza	

Test 1		
(NO _x) _u =	20.55	
(NO) _u =	0.07	
(NO ₂) _i =	20.61	
Efficienza convertitore:		99.4 %

Test 2		
(NO _x) _u =	20.54	
(NO) _u =	0.06	
(NO ₂) _i =	20.56	
Efficienza convertitore:		99.6 %

Test 3		
(NO _x) _u =	20.56	
(NO) _u =	0.05	
(NO ₂) _i =	20.55	
Efficienza convertitore:		99.8 %

Efficienza media del convertitore: 99.6 %

Operatore: Modesto Oliviero
Data: 11/01/2021

Controllo QAT: Fulvio Ghisolfi
Data: 11/01/2021

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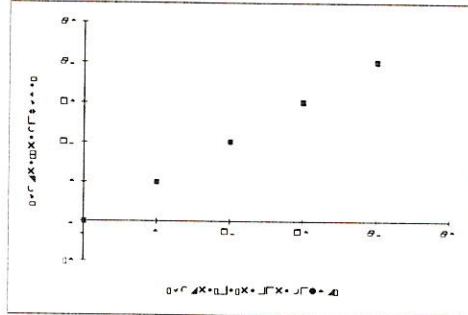
Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (%FS)	Valore atteso	Esito
	80	2.5	3.125	3.125	POSITIVO

Strumento: Horiba
Modello: PG-250
Cod. Int.: 3458
Data: 11/01/2021

Verifica linearità O₂

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori rif. valori di	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Rispetto al fondo scala
	%	%	%	%	%	%	%	%	%	%	%	%
1	0.00	-0.02	-0.01	-0.01	0.0	0.0	0.0	0.0	25	20.00	0.0	0.0
2	5.00	5.00	4.99	4.98	5.0	0.0	0.0	0.0	25	20.00	0.0	0.0
3	10.00	10.11	10.00	10.12	10.1	0.0	0.0	0.0	25	20.00	75.0	20.0
4	15.00	15.12	15.00	15.11	15.1	0.0	0.0	0.0	25	20.00	50.0	20.0
5	20.00	20.10	20.00	19.99	20.0	0.0	0.0	0.0	25	20.00	100.0	20.0
6	0.00	0.00	0.00	-0.01	0.0	0.0	0.0	0.0	25	20.00	0.0	0.0

Deviazioni
0.0 0.0 0.0
0.0 0.0 0.0
0.1 0.0 0.1
0.1 0.0 0.1
0.1 0.0 0.0
0.0 0.0 0.0



Bombola	Costruttore	Certif. N°	del	Scadenza
Shd	NT 143 V0804	161070	1007/25	

Syx	Sa	Sb
0.0499	0.0177	0.0016

R	a	b	n
1.0000	0.0029	1.0035	18

x _i	y _i	x _i ²	y _i (rett.)	Residui	Residui ²	(x _i -x _{media})	(x _i -x _{media}) ²	(y _i -y _{media})	(y _i -y _{media}) ²	(x _i -x _{media})(y _i -y _{media})
0.0	0.0	0	-0.002916667	-0.02	0.000291667	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
5.0	5.0	25	5.0145	0.01	0.0001025	-3.333333333	11.11111111	1.285967	1.655506	-4.285967
10.0	10.1	100	10.03191667	0.08	0.006400000	1.666666667	2.777777778	1.7055556	2.9292929	2.9292929
15.0	15.1	225	15.04933333	0.07	0.004900000	6.666666667	44.44444444	6.7055556	45.07037037	45.07037037
20.0	20.1	400	20.06675	0.03	0.001600000	11.66666667	136.1111111	11.7405556	137.84645	136.9731481
0.0	0.0	0	-0.002916667	0.00	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
0.0	0.0	0	-0.002916667	-0.01	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
5.0	5.0	25	5.0145	-0.02	0.000400000	-3.333333333	11.11111111	1.285967	1.655506	-4.285967
10.0	10.0	100	10.03191667	-0.03	0.000900000	1.666666667	2.777777778	1.7055556	2.9292929	2.9292929
15.0	15.0	225	15.04933333	-0.05	0.002500000	6.666666667	44.44444444	6.7055556	45.07037037	45.07037037
20.0	20.0	400	20.06675	-0.07	0.004900000	11.66666667	136.1111111	11.7405556	137.84645	136.9731481
0.0	0.0	0	-0.002916667	0.00	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
0.0	0.0	0	-0.002916667	-0.01	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
5.0	5.0	25	5.0145	-0.03	0.000900000	-3.333333333	11.11111111	1.285967	1.655506	-4.285967
10.0	10.0	100	10.03191667	-0.05	0.002500000	6.666666667	44.44444444	6.7055556	45.07037037	45.07037037
15.0	15.0	225	15.04933333	-0.07	0.004900000	11.66666667	136.1111111	11.7405556	137.84645	136.9731481
20.0	20.0	400	20.06675	-0.09	0.008100000	16.66666667	277.7777778	16.7955556	282.18519	282.18519
0.0	0.0	0	-0.002916667	0.00	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
0.0	0.0	0	-0.002916667	-0.01	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
5.0	5.0	25	5.0145	-0.03	0.000900000	-3.333333333	11.11111111	1.285967	1.655506	-4.285967
10.0	10.0	100	10.03191667	-0.05	0.002500000	6.666666667	44.44444444	6.7055556	45.07037037	45.07037037
15.0	15.0	225	15.04933333	-0.07	0.004900000	11.66666667	136.1111111	11.7405556	137.84645	136.9731481
20.0	20.0	400	20.06675	-0.09	0.008100000	16.66666667	277.7777778	16.7955556	282.18519	282.18519
0.0	0.0	0	-0.002916667	0.00	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922
0.0	0.0	0	-0.002916667	-0.01	0.000000000	-8.333333333	69.44444444	-3.3594444	11.28592	-27.2152922

x centroide	y centroide	x _i ²	x resid ²	(x _i -x _{media}) ²	(y _i -y _{media}) ²	(x _i -x _{media})(y _i -y _{media})
8.333333333	8.359444444	7250	0.035894167	1000	1007.01669	1003.483333

Verifica ripetibilità O₂

N° Prove	Valore ottenuto
1	20.11
2	20.11
3	20.12
4	20.12
5	20.00
6	20.00

Scarto tipo calcolato: Sr = 0.06

Operatore: Modesto Oliviero
Data: 11/01/2021

Controllo QAT
Data:

Fulvio Ghiselli
Data: 11/01/2021

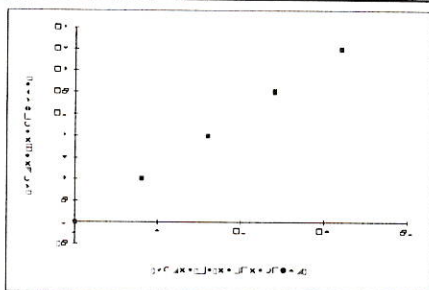
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Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (NFS)	Valore atteso	Esito
	80	2.5	3.125	3.125	POSITIVA

Strumento: Horiba
Modello: PG-250
Cod Int: 3458
Data: 11/01/2021

Verifica linearità CO₂

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori di riferimento	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Ripete al fondo scala	Deviazioni		
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	0.00	0.00	0.00	0.01	0.0	0.0	0.0	0.0	20	24.00	0.0	0.0	0.0	0.0	0.0
2	4.00	4.00	4.00	4.00	4.0	0.0	0.0	0.0	20	24.00	16.7	20.0	0.0	0.0	0.0
3	8.00	8.00	7.99	8.00	8.0	0.0	0.0	0.1	20	24.00	33.3	40.0	0.0	0.0	0.0
4	12.00	12.00	12.00	12.11	12.1	0.0	0.0	0.1	20	24.00	50.0	60.0	0.1	0.0	0.1
5	16.00	16.00	16.00	16.00	16.0	0.0	0.0	0.0	20	24.00	66.7	80.0	0.0	0.0	0.0
6	0.00	0.01	0.01	0.00	0.0	0.0	0.0	0.0	20	24.00	0.0	0.0	0.0	0.0	0.0



Bombola	Certif. N°	del	scadenza
Costruttore	NT 143 191216	04/03/2020	20/01/2023

Sylx	Sa	Sb
0.0295	0.0104	0.0012

R	a	b	n
1.0000	-0.0013	1.0014	15

%	Y	x _i	Y _i (retta)	Residui	Residui ²	(x _i -x _{media})	(x _i -x _{media}) ²	(Y _i -Y _{media})	(Y _i -Y _{media}) ²	(x _i -x _{media})(Y _i -Y _{media})
0.0	0.0	0	-0.00125	0.00	1.9525E-06	-9.999999997	44.44444444	-6.4744444	44.54520994	-44.4902903
4.0	4.0	16	4.004199997	0.00	1.79111E-05	-9.999999997	7.111111111	-2.4744444	7.15292009	7.131861852
8.0	8.0	64	8.005633333	-0.01	9.1840E-05	1.333333333	1.777777778	1.325555556	1.75707531	1.787407407
12.0	12.1	144	12.015	0.04	0.00025	5.333333333	28.44444444	5.385555556	29.04209944	28.7290296
16.0	16.0	256	16.00419997	0.00	0.00025174	9.333333333	87.11111111	9.315555556	86.7797531	86.94518619
2.0	0.0	0	-0.00125	-0.01	7.6925E-05	-9.999999997	44.44444444	-6.9444444	44.8170753	44.5029296
3.0	0.0	0	-0.00125	0.00	1.9525E-06	-9.999999997	44.44444444	-6.4744444	44.54520994	-44.4902903
4.0	4.0	16	4.004199997	0.00	1.79111E-05	-9.999999997	7.111111111	-2.4744444	7.15292009	7.131861852
8.0	8.0	64	8.005633333	0.00	9.1840E-05	1.333333333	1.777777778	1.325555556	1.75707531	1.787407407
12.0	12.0	144	12.015	0.00	0.00025	5.333333333	28.44444444	5.385555556	29.04209944	28.7290296
16.0	16.0	256	16.00419997	-0.02	0.00041884	9.333333333	87.11111111	9.325555556	86.9589542	87.03851852
0.0	0.0	0	-0.00125	-0.01	7.6925E-05	-9.999999997	44.44444444	-6.9444444	44.8170753	44.5029296
0.0	0.0	0	-0.00125	0.00	1.9525E-06	-9.999999997	44.44444444	-6.4744444	44.54520994	-44.4902903
4.0	4.0	16	4.004199997	0.00	1.79111E-05	-9.999999997	7.111111111	-2.4744444	7.15292009	7.131861852
8.0	8.0	64	8.005633333	-0.01	9.1840E-05	1.333333333	1.777777778	1.325555556	1.75707531	1.787407407
12.0	12.1	144	12.015	0.00	0.00025	5.333333333	28.44444444	5.385555556	29.04209944	28.7290296
16.0	16.0	256	16.00419997	-0.02	0.00041884	9.333333333	87.11111111	9.325555556	86.9589542	87.03851852
0.0	0.0	0	-0.00125	0.00	1.9525E-06	-9.999999997	44.44444444	-6.4744444	44.54520994	-44.4902903

x centrato	y centrato	x ²	Resid	I (x _i -x _{media}) ²	I (x _i -x _{media}) ²	I (x _i -x _{media}) ²
-9.999999997	-6.974444444	1440	0.0130375	640	640	640.9999997

N° Prove	Valore ottenuto
1	15.99
2	16.02
3	16.10
4	16.00
5	16.10
6	16.10

Scarto tipo calcolato: Sr = 0.06

Operatore: Modesto Olivera
Data: 11/01/2021

Controllo (AT): Fulvio Ghisolfi
Data: 11/01/2021

FM

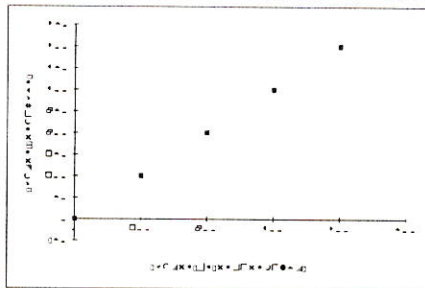
Verifica foglio di calcolo	Fondo scala	Scarto tipo	Sr (LFS)	Valore atteso	Esito
	80	2.5	3.125	3.125	POSITIVO

Sinimento: Horiba
Modello: PG-250
Cod Int.: 3458
Data: 11/01/2021

Verifica linearità CO

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori rif. valori ril.	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Rispetto al fondo scala
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	%	%
1	0.0	-0.01	0.00	-0.02	0.0	0.0	0.0	0.0	500	800.00	0.0	0.0
2	100.00	100.00	100.10	100.00	100.1	-0.1	0.1	0.2	500	800.00	12.5	20.0
3	200.00	201.00	201.00	201.20	201.1	0.1	0.1	1.2	500	800.00	25.0	40.0
4	300.00	301.20	301.15	300.20	300.9	0.0	0.0	1.2	500	800.00	37.5	60.0
5	400.00	401.30	401.00	400.80	401.0	0.0	0.0	1.3	500	800.00	50.0	80.0
6	0.00	-0.01	-0.01	0.00	0.0	0.0	0.0	0.0	500	800.00	0.0	0.0

Deviazioni		
0.0	0.0	0.0
0.0	0.2	0.0
1.0	1.0	1.2
1.2	1.1	0.3
1.3	0.9	0.9
0.0	0.0	0.0



Bombola	Construttore	Certif. N°	del	scadenza
5-ml	NT 143 V4122M	03/02/2020	27/07/2023	

Sr/c	Sa	Sb
0.3198	0.1131	0.0005

R	a	b	n
1.0000	0.0117	1.0020	19

Sr	Sa	Sb	Sr (media)	Residui	Residui²	(Sr/Sa)²	(Sr/Sa)²	(Sr/Sa)²	(Sr/Sa)²	(Sr/Sa)²	(Sr/Sa)²
0.0	0.0	0	0.011999987	-0.02	0.000400044	-0.000000001	27777.77778	-107.17722	27944.80019	27944.80019	27944.80019
100.0	100.0	100.00	100.305	-0.30	0.0900000	-0.000000001	4444.44444	-07.10722	4511.43071	4477.81815	4477.81815
200.0	200.0	200.00	200.5933333	0.40	0.1600000	0.000000001	1111.11111	33.8327778	1144.99955	1127.79650	1127.79650
300.0	300.0	300.00	300.8816667	0.21	0.0441000	0.000000001	133.33333	17777.77778	1394.78652	1371.00704	1371.00704
400.0	400.0	400.00	401.17000	0.17	0.0289000	0.000000001	200.00000	5444.44444	204.13278	204.13278	204.13278
0.0	0.0	0	0.011999987	-0.02	0.000400044	-0.000000001	27777.77778	-107.17722	27944.80019	27944.80019	27944.80019
100.0	100.0	100.00	100.305	-0.30	0.0900000	0.000000001	4444.44444	-07.10722	4511.43071	4477.81815	4477.81815
200.0	200.0	200.00	200.5933333	0.40	0.1600000	0.000000001	1111.11111	33.8327778	1144.99955	1127.79650	1127.79650
300.0	300.0	300.00	300.8816667	0.21	0.0441000	0.000000001	133.33333	17777.77778	1394.78652	1371.00704	1371.00704
400.0	400.0	400.00	401.17000	0.17	0.0289000	0.000000001	200.00000	5444.44444	204.13278	204.13278	204.13278
0.0	0.0	0	0.011999987	-0.02	0.000400044	-0.000000001	27777.77778	-107.17722	27944.80019	27944.80019	27944.80019
100.0	100.0	100.00	100.305	-0.30	0.0900000	0.000000001	4444.44444	-07.10722	4511.43071	4477.81815	4477.81815
200.0	200.0	200.00	200.5933333	0.40	0.1600000	0.000000001	1111.11111	33.8327778	1144.99955	1127.79650	1127.79650
300.0	300.0	300.00	300.8816667	0.21	0.0441000	0.000000001	133.33333	17777.77778	1394.78652	1371.00704	1371.00704
400.0	400.0	400.00	401.17000	0.17	0.0289000	0.000000001	200.00000	5444.44444	204.13278	204.13278	204.13278
0.0	0.0	0	0.011999987	-0.02	0.000400044	-0.000000001	27777.77778	-107.17722	27944.80019	27944.80019	27944.80019
100.0	100.0	100.00	100.305	-0.30	0.0900000	0.000000001	4444.44444	-07.10722	4511.43071	4477.81815	4477.81815
200.0	200.0	200.00	200.5933333	0.40	0.1600000	0.000000001	1111.11111	33.8327778	1144.99955	1127.79650	1127.79650
300.0	300.0	300.00	300.8816667	0.21	0.0441000	0.000000001	133.33333	17777.77778	1394.78652	1371.00704	1371.00704
400.0	400.0	400.00	401.17000	0.17	0.0289000	0.000000001	200.00000	5444.44444	204.13278	204.13278	204.13278
0.0	0.0	0	0.011999987	-0.02	0.000400044	-0.000000001	27777.77778	-107.17722	27944.80019	27944.80019	27944.80019

x centrato	y centrato	E (x²)	E (y²)	E (x²)	E (y²)
1.0000000	0.0117000	1.0000000	0.0001369	1.0000000	0.0001369

Verifica ripetibilità CO

N° Prove	Valore ottenuto
1	300.00
2	400.00
3	200.00
4	300.00
5	400.00
6	400.00

Scarto tipo calcolato: Sr = 8.81

Operatore: Modesto Olivero
Data: 11/01/2021

Controllo CAT: Fulvio Ghiselli
Data: 11/01/2021

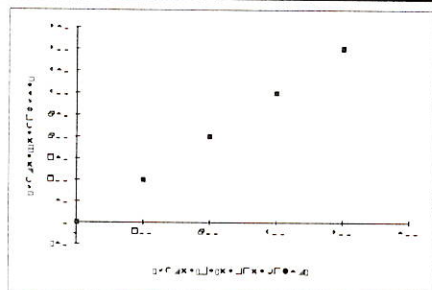
Verifica foglio di calcolo	Fondo scala	Scarto tipo	St (NFS)	Valore atteso	Esito
	80	2.5	0.126	0.126	P0201502

Strumento: Horiba
Modello: PG-250
Cod. Int.: 3458
Data: 11/01/2021

Verifica linearità NO

Condizione n.	Valori di riferimento	Valori rilevati	Valori rilevati	Valori rilevati	Media	Residui	Residui Relativi	Deviazione valori in calcoli	Fondo scala strumentale	Conc. bombola utilizzata	Bombola utilizzata	Rispetto al fondo scala
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
1	0.0	-0.01	0.00	-0.01	0.0	0.0	0.0	0.0	500	400.00	0.0	0.0
2	100.00	100.40	100.10	100.15	100.2	0.0	0.0	0.0	500	400.00	25.0	25.0
3	200.00	200.12	201.00	201.25	200.8	0.4	0.1	1.3	500	400.00	50.0	50.0
4	300.00	300.00	299.00	298.00	300.0	-0.4	0.1	0.0	500	400.00	75.0	75.0
5	400.00	400.00	401.10	402.00	401.1	0.1	0.1	2.0	500	400.00	100.0	100.0
6	500.00	500.00	500.00	500.00	500.0	0.0	0.0	0.1	500	400.00	0.0	0.0

Deviations	Deviations	Deviations
0.0	0.0	0.0
0.4	0.1	0.2
0.1	1.0	1.5
0.0	0.0	0.0
0.2	1.1	2.0
0.0	0.0	0.1



Bombola	Certif. N°	del	scadenza
Construttore	AT 143 01219	31/01/2020	30/01/2022

Int.	5a	5b
0.5551	0.1521	0.0008

R	a	b	n
1.0000	-0.0009	1.0021	18

x	y	x²	y²	xy	Residui	Residui²	(x-xm)²	(x-xm)²	(y-ym)²	(y-ym)²	(x-xm)(y-ym)
0.0	0.0	0.00000000	0.00000000	0.00000000	0.01	0.00010000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
100.0	100.4	10000.0000	10080.1600	10040.0000	0.19	0.00003610	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
200.0	200.1	40000.0000	40040.0100	40020.0000	-0.20	0.00004000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
300.0	300.0	90000.0000	90000.0000	90000.0000	-0.02	0.00000400	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
400.0	400.2	160000.0000	160160.0400	160080.0000	-0.03	0.00000900	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
500.0	500.0	250000.0000	250000.0000	250000.0000	0.00	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
0.0	0.0	0.00000000	0.00000000	0.00000000	0.00	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
100.0	100.1	10000.0000	10020.0100	10010.0000	-0.11	0.00001210	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
200.0	200.0	40000.0000	40000.0000	40000.0000	0.00	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
300.0	300.0	90000.0000	90000.0000	90000.0000	-0.03	0.00000900	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
400.0	401.1	160000.0000	160881.2100	160440.0000	0.30	0.00009000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
500.0	500.0	250000.0000	250000.0000	250000.0000	0.00	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
0.0	0.0	0.00000000	0.00000000	0.00000000	0.00	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
100.0	100.2	10000.0000	10040.0400	10020.0000	-0.01	0.00000100	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
200.0	201.3	40000.0000	40521.6900	40260.0000	0.54	0.00029160	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
300.0	300.0	90000.0000	90000.0000	90000.0000	-0.04	0.00001600	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
400.0	402.0	160000.0000	161604.0000	160800.0000	1.17	0.00136890	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
500.0	500.0	250000.0000	250000.0000	250000.0000	-0.10	0.00001000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000

x-centroide	y-centroide	x²	y²	xy	x-centroide	y-centroide	x²	y²	xy
17.111111	299.999999	292.777778	89999.9999	5133.333333	17.111111	299.999999	292.777778	89999.9999	5133.333333

Verifica ripetibilità NO	NP Probe	Valore ottenuto
1	300.00	300.00
2	301.00	301.00
3	299.10	299.10
4	300.20	300.20
5	301.00	301.00
6	300.00	300.00

Scarto tipo calcolato: St =

0.47

Operatore: Modesto Olivero
Data: 11/01/2021

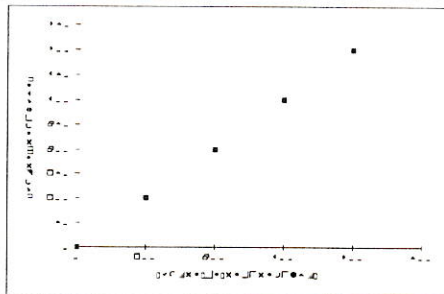
Controllo QAT: Fulvio Ghiselli
Data: 11/01/2021

Verifica logio di calcolo	Fondo scala	Scarto tipo	Sr (PFS)	Valore atteso	Esito
	80	2.5	3.125	3.125	POSITIVO

Strumento: Horiba
Modello: PG-250
Cod. Int.: 3458
Data: 11/01/2021

Verifica linearità SO₂

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	Deviations
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	%	
1	0.00	0.01	0.00	0.01	0.0	-0.1	0.0	0.0	500	400.00	0.0	0.0	0.0 0.0 0.0
2	150.00	150.00	150.00	150.00	150.3	0.3	0.0	0.0	500	400.00	25.0	20.0	0.0 1.0 0.0
3	300.00	300.10	300.00	300.00	300.0	0.0	0.0	0.0	500	400.00	50.0	40.0	0.1 0.0 0.0
4	300.00	300.00	301.00	300.00	300.3	0.3	0.0	0.0	500	400.00	75.0	60.0	0.0 1.0 0.0
5	400.00	400.00	399.99	400.12	400.0	-0.1	0.0	0.0	500	400.00	100.0	80.0	0.0 0.0 0.1
6	0.00	0.00	0.01	0.01	0.0	-0.1	0.0	0.0	500	400.00	0.0	0.0	0.0 0.0 0.0



Bombola	Costruttore	Certif. N°	del	scadenza
	Snad	NT 143 W0801	12/10/2020	09/10/2022

Syst.	Se	Sp
0.3258	0.1163	0.0005

R	a	b	n
1.0000	0.0850	1.0002	18

X _i	Y _i	a ²	Y _i (retta)	Residui	Residui ²	(X _i -X _{med})	(X _i -X _{med}) ²	(Y _i -Y _{med})	(Y _i -Y _{med}) ²	(X _i -X _{med})(Y _i -Y _{med})
0.0	0.0	0.0000	0.085	-0.085	0.007225	-198.6666667	39468.88889	-198.6	39452.36	-27800.0
150.0	150.0	22500.0	130.875	-19.125	365.765625	-44.6666667	1994.44444	-44.6	1989.16	-4452.0
300.0	300.1	90000.0	261.75	-39.65	1572.3225	-89.3333333	7980.44444	-89.3	7974.49	-8933.3
300.0	300.0	90000.0	261.75	-39.75	1580.0625	-89.3333333	7980.44444	-89.3	7974.49	-8933.3
400.0	400.0	160000.0	345.625	-45.625	2081.40625	-118.6666667	14081.77778	-118.6	14066.56	-11866.7
0.0	0.0	0.0000	0.085	-0.085	0.007225	-198.6666667	39468.88889	-198.6	39452.36	-27800.0
150.0	150.0	22500.0	130.875	-19.125	365.765625	-44.6666667	1994.44444	-44.6	1989.16	-4452.0
300.0	300.0	90000.0	261.75	-39.75	1580.0625	-89.3333333	7980.44444	-89.3	7974.49	-8933.3
400.0	400.0	160000.0	345.625	-45.625	2081.40625	-118.6666667	14081.77778	-118.6	14066.56	-11866.7
0.0	0.0	0.0000	0.085	-0.085	0.007225	-198.6666667	39468.88889	-198.6	39452.36	-27800.0
150.0	150.0	22500.0	130.875	-19.125	365.765625	-44.6666667	1994.44444	-44.6	1989.16	-4452.0
300.0	300.0	90000.0	261.75	-39.75	1580.0625	-89.3333333	7980.44444	-89.3	7974.49	-8933.3
400.0	400.0	160000.0	345.625	-45.625	2081.40625	-118.6666667	14081.77778	-118.6	14066.56	-11866.7
0.0	0.0	0.0000	0.085	-0.085	0.007225	-198.6666667	39468.88889	-198.6	39452.36	-27800.0
150.0	150.0	22500.0	130.875	-19.125	365.765625	-44.6666667	1994.44444	-44.6	1989.16	-4452.0
300.0	300.0	90000.0	261.75	-39.75	1580.0625	-89.3333333	7980.44444	-89.3	7974.49	-8933.3
400.0	400.0	160000.0	345.625	-45.625	2081.40625	-118.6666667	14081.77778	-118.6	14066.56	-11866.7
0.0	0.0	0.0000	0.085	-0.085	0.007225	-198.6666667	39468.88889	-198.6	39452.36	-27800.0

x centroide	y centroide	E x _i ²	E resid ²	E (x _i -x _{med}) ²	E (y _i -y _{med}) ²	E (x _i -x _{med})(y _i -y _{med})
150.0000000	150.70	45000.00	1.73414	45000.00	45005.7512	45000.00

Verifica ripetibilità SO₂

N° Prova	Valore ottenuto
1	400.00
2	400.10
3	400.10
4	401.10
5	401.20
6	400.10

Scarto tipo calcolato: Sr =

Operatore: Modesto Olivero
Data: 11/01/2021

Controllo QAT: Fulvio Ghisolfi
Data: 11/01/2021

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