

▪ Certificate of Analysis ▪

Product: Air and Emissions Volatiles on Sorbent
Catalog Number: 1101
Lot No. E029-1101
Certificate Issue Date: December 03, 2014
Expiration Date: May 02, 2016
Revision Number: Original

CERTIFICATION

Parameter	Certified Value ¹	Uncertainty ²	QC Performance Acceptance Limits ³	PT Performance Acceptance Limits ⁴
	ng/sample	%	ng/sample	ng/sample
Acetone	<200	-	-	-
Acetonitrile	<50.0	-	-	-
Acrolein	<50.0	-	-	-
Acrylonitrile	<50.0	-	-	-
Benzene	305	0.812	238 - 363	238 - 363
Bromodichloromethane	514	0.750	416 - 648	416 - 648
Bromoform	390	0.746	290 - 495	290 - 495
Bromomethane	298	0.858	122 - 432	122 - 432
2-Butanone (MEK)	<50.0	-	-	-
tert-Butyl methyl ether (MTBE)	460	0.744	362 - 584	362 - 584
Carbon disulfide	<50.0	-	-	-
Carbon tetrachloride	202	0.642	131 - 252	131 - 252
Chlorobenzene	176	1.17	139 - 209	139 - 209
Chlorodibromomethane	725	0.748	568 - 899	568 - 899
Chloroethane	<200	-	-	-
2-Chloroethylvinylether	<50.0	-	-	-
Chloroform	560	0.746	441 - 683	441 - 683
Chloromethane	<200	-	-	-
1,2-Dibromo-3-chloropropane (DBCP)	<150	-	-	-
1,2-Dibromoethane (EDB)	<100	-	-	-
Dibromomethane	<100	-	-	-
1,2-Dichlorobenzene	176	1.17	134 - 213	134 - 213
1,3-Dichlorobenzene	453	1.16	330 - 539	330 - 539

ISO/IEC GUIDE 34:2009

ISO/IEC 17025:2005



▪ Certificate of Analysis ▪

Parameter	Certified Value ¹	Uncertainty ²	QC Performance Acceptance Limits ³	PT Performance Acceptance Limits ⁴
	ng/sample	%	ng/sample	ng/sample
1,4-Dichlorobenzene	136	1.17	102 - 165	102 - 165
Dichlorodifluoromethane (Freon 12)	<50.0	-	-	-
1,1-Dichloroethane	159	1.17	125 - 196	125 - 196
1,2-Dichloroethane	223	0.812	178 - 277	178 - 277
1,1-Dichloroethylene	434	0.746	295 - 582	295 - 582
cis-1,2-Dichloroethylene	239	0.812	188 - 294	188 - 294
trans-1,2-Dichloroethylene	<100	-	-	-
1,2-Dichloropropane	246	0.812	195 - 298	195 - 298
cis-1,3-Dichloropropylene	219	0.646	163 - 261	163 - 261
trans-1,3-Dichloropropylene	710	0.752	545 - 873	545 - 873
Ethylbenzene	132	0.776	97.3 - 161	97.3 - 161
Hexachlorobutadiene	<500	-	-	-
2-Hexanone	<200	-	-	-
Methylene chloride	<100	-	-	-
4-Methyl-2-pentanone (MIBK)	283	0.816	190 - 371	190 - 371
Naphthalene	157	0.812	96.9 - 196	96.9 - 196
Styrene	462	0.746	360 - 564	360 - 564
1,1,1,2-Tetrachloroethane	<150	-	-	-
1,1,2,2-Tetrachloroethane	169	1.18	130 - 216	130 - 216
Tetrachloroethylene	487	0.746	307 - 584	307 - 584
Toluene	448	0.746	345 - 533	345 - 533
1,2,4-Trichlorobenzene	515	0.748	300 - 649	300 - 649
1,1,1-Trichloroethane	325	0.812	233 - 396	233 - 396
1,1,2-Trichloroethane	454	0.746	369 - 554	369 - 554
Trichloroethylene	237	0.812	175 - 284	175 - 284
Trichlorofluoromethane	367	0.744	218 - 510	218 - 510
1,2,3-Trichloropropane (TCP)	<150	-	-	-
1,2,4-Trimethylbenzene	<100	-	-	-
1,3,5-Trimethylbenzene	<100	-	-	-
Vinyl acetate	<50.0	-	-	-

▪ Certificate of Analysis ▪

Parameter	Certified Value ¹	Uncertainty ²	QC Performance Acceptance Limits ³	PT Performance Acceptance Limits ⁴
	ng/sample	%	ng/sample	ng/sample
Vinyl chloride	<200	-	-	-
m&p-Xylene	<100	-	-	-
m-Xylene	<50.0	-	-	-
o-Xylene	<100	-	-	-
Xylenes, total	<200	-	-	-
p-Xylene	<50.0	-	-	-

ANALYTICAL VERIFICATION

Parameter	Certified Value ¹	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery ⁵	n	SRM Number	Recovery
	ng/sample	ng/sample	%			%
Acetone	<200	-	-	-	-	-
Acetonitrile	<50.0	-	-	-	-	-
Acrolein	<50.0	-	-	-	-	-
Acrylonitrile	<50.0	-	-	-	-	-
Benzene	305	284	93.1	6	-	-
Bromodichloromethane	514	466	90.6	4	-	-
Bromoform	390	393	101	4	-	-
Bromomethane	298	158	53.0	1	-	-
2-Butanone (MEK)	<50.0	-	-	-	-	-
tert-Butyl methyl ether (MTBE)	460	453	98.4	3	-	-
Carbon disulfide	<50.0	-	-	-	-	-
Carbon tetrachloride	202	200	99.0	5	-	-
Chlorobenzene	176	172	97.5	5	-	-
Chlorodibromomethane	725	720	99.2	4	-	-
Chloroethane	<200	-	-	-	-	-
2-Chloroethylvinylether	<50.0	-	-	-	-	-
Chloroform	560	532	95.0	4	-	-
Chloromethane	<200	-	-	-	-	-

▪ Certificate of Analysis ▪

Parameter	Certified Value ¹	Proficiency Testing Study		n	NIST Traceability	
		Mean	Recovery ⁵		SRM Number	Recovery
	ng/sample	ng/sample	%			%
1,2-Dibromo-3-chloropropane (DBCP)	<150	-	-	-	-	-
1,2-Dibromoethane (EDB)	<100	-	-	-	-	-
Dibromomethane	<100	-	-	-	-	-
1,2-Dichlorobenzene	176	187	106	5	-	-
1,3-Dichlorobenzene	453	481	106	5	-	-
1,4-Dichlorobenzene	136	143	105	5	-	-
Dichlorodifluoromethane (Freon 12)	<50.0	-	-	-	-	-
1,1-Dichloroethane	159	145	90.9	5	-	-
1,2-Dichloroethane	223	214	96.0	4	-	-
1,1-Dichloroethylene	434	403	92.9	4	-	-
cis-1,2-Dichloroethylene	239	224	93.5	4	-	-
trans-1,2-Dichloroethylene	<100	-	-	-	-	-
1,2-Dichloropropane	246	243	98.6	5	-	-
cis-1,3-Dichloropropylene	219	211	96.3	4	-	-
trans-1,3-Dichloropropylene	710	592	83.3	4	-	-
Ethylbenzene	132	130	98.9	6	-	-
Hexachlorobutadiene	<500	-	-	-	-	-
2-Hexanone	<200	-	-	-	-	-
Methylene chloride	<100	-	-	-	-	-
4-Methyl-2-pentanone (MIBK)	283	271	95.7	4	-	-
Naphthalene	157	170	108	4	-	-
Styrene	462	437	94.6	4	-	-
1,1,1,2-Tetrachloroethane	<150	-	-	-	-	-
1,1,2,2-Tetrachloroethane	169	173	102	5	-	-
Tetrachloroethylene	487	464	95.4	5	-	-
Toluene	448	433	96.6	6	-	-
1,2,4-Trichlorobenzene	515	567	110	4	-	-
1,1,1-Trichloroethane	325	294	90.5	4	-	-
1,1,2-Trichloroethane	454	455	100	5	-	-
Trichloroethylene	237	238	101	4	-	-

▪ Certificate of Analysis ▪

Parameter	Certified Value ¹	Proficiency Testing Study		n	NIST Traceability	
		Mean	Recovery ⁵		SRM Number	Recovery
	ng/sample	ng/sample	%			%
Trichlorofluoromethane	367	304	82.8	3	-	-
1,2,3-Trichloropropane (TCP)	<150	-	-	-	-	-
1,2,4-Trimethylbenzene	<100	-	-	-	-	-
1,3,5-Trimethylbenzene	<100	-	-	-	-	-
Vinyl acetate	<50.0	-	-	-	-	-
Vinyl chloride	<200	-	-	-	-	-
m&p-Xylene	<100	-	-	-	-	-
m-Xylene	<50.0	-	-	-	-	-
o-Xylene	<100	-	-	-	-	-
Xylenes, total	<200	-	-	-	-	-
p-Xylene	<50.0	-	-	-	-	-

▪ Certificate of Analysis ▪

1. The **Certified Values** are the actual "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

2. The stated **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor. The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product.

3. The **QC Performance Acceptance Limits (QC PALS™)** are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALS™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALS™ to realistically evaluate your performance against your peers.

4. The **PT Performance Acceptance Limits (PT PALS™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the PT PALS™ when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

5. The **PT Data/Traceability** data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values. In addition, where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. This product is traceable to the lot numbers of its starting materials. All gravimetric and volumetric measurements related to its manufacture are traceable to NIST through an unbroken chain of comparisons.

Traceability Recovery (%) = $[(\% \text{ recovery certified standard}) / (\% \text{ recovery NIST SRM})] * 100$

The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

6. For additional information on this product such as intended use, instructions for use, level of homogeneity, and safety information, please refer to the provided Instruction Sheet

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

Mike Blades



Quality Officer

Kristina Sanchez

