

Bydgoszcz, dnia 04.08.2015

WIOŚ-SSZP.272.26.2015

WYJAŚNIENIE TREŚCI SIWZ

Wojewódzki Inspektorat Ochrony Środowiska w Bydgoszczy zgodnie z art. 38 ust 2. ustawy z dnia 29 stycznia 2004r - Prawo zamówień publicznych (Dz. U. z 2013r. poz. 907 z późn. zm.) informuje, że wpłynęły prośby o wyjaśnienie treści SIWZ w postępowaniu prowadzonym w trybie przetargu nieograniczonego na dostawę rozpuszczalników, wzorców i innych odczynników.

Pytanie 1:

Dotyczy Zadania nr 5, poz. 3,
Ethylobenzen dostępny jest w opakowaniu 1ml. Czy Zamawiający wyrazi zgodę na dostawę materiału 5 x1ml?

Odpowiedź na pytanie 1:

Tak

Pytanie 2:

Dotyczy Zadania nr 11,
Czy Zamawiający dopuści r-r z 12 miesięczną datą ważności?

Odpowiedź na pytanie 2:

Nie

Pytanie 3:

Dotyczy Zadania nr 12,
Czy Zamawiający dopuści r-r z 12 miesięczną datą ważności?

Odpowiedź na pytanie 3:

Nie

Pytanie 4:

Dotyczy Zadania nr 14,
Czy Zamawiający dopuści r-ry z 12 miesięczną datą ważności?

Odpowiedź na pytanie 4:

Nie

Pytanie 5:

Dotyczy Zadania nr 14, poz. 4,
Czy Zamawiający dopuści r-r antymonu w matrycy HNO₃ z dodatkiem HF?

Odpowiedź na pytanie 5:

Nie

Pytanie 6:

Dotyczy Zadania nr 14, poz. 3,
Czy Zamawiający dopuści r-r talu w matrycy HNO₃ z dodatkiem HF?

Odpowiedź na pytanie 6:

Nie

Pytanie 7:

Dotyczy Zadania nr 14, poz. 8-11,
Czy Zamawiający dopuści:
r-r wzorcowy ołowiu w 0,5 % HNO₃

r-r wzorcowy sodu w 0,1 % HNO₃
r-r wzorcowy wapnia w 0,1% HNO₃
r-r wzorcowy magnezu w 0,1% HNO₃?

Odpowiedź na pytanie 7:

Nie

Pytanie 8:

Dotyczy Zadania nr 16,
Czy Zamawiający dopuści r-r z 12 miesięczną datą ważności?

Odpowiedź na pytanie 8:

Tak

Pytanie 9:

Dotyczy Zadania nr 16, poz. 3 i 4,
Czy Zamawiający wyrazi zgodę na zaoferowanie w pozycjach 3 i 4 mieszanin ICP z datą ważności min 13 m-cy od daty dostawy?

Odpowiedź na pytanie 9:

Tak

Pytanie 10:

Dotyczy Zadania nr 17, poz. 1 i 2,
Materiały nie są przygotowywane zgodnie z akredytacją ISO/IEC 17025:2005. Czy Zamawiający wyrazi zgodę na dostawę materiałów bez akredytacji?

Odpowiedź na pytanie 10:

Tak

Pytanie 11:

Dotyczy Zadania nr 18,
Czy Zamawiający wyrazi zgodę na zaoferowanie wzorca CRM356-100G? (Załącz.1) Załączamy certyfikat

Odpowiedź na pytanie 11:

Nie

Pytanie 12:

Dotyczy Zadania nr 25, poz. 1, 4, 18, 28,
Czy Zamawiający wyrazi zgodę na zaoferowanie w pozycjach 1, 4, 18, 28 – wzorców nieobjętych zakresem akredytacji ISO17025? Według naszej wiedzy, na chwilę obecną, nie ma na rynku wzorców spełniających podane kryteria i posiadających akredytację ISO 17025.

Odpowiedź na pytanie 12:

Tak

Pytanie 13:

Dotyczy Zadania nr 25, poz. 8,
Roztwór wzorcowy azotu azotanowego należy do materiałów krótkotrwałych i data ważności jest nie dłuższa niż 6 miesięcy. Czy Zamawiający wyrazi zgodę na dostawę materiału z taką datą ważności?

Odpowiedź na pytanie 13:

Nie

Pytanie 14:

Dotyczy Zadania nr 25, poz. 9,
Roztwór wzorcowy azotu azotanowego aktualnie dostępny jest z datą ważności 31.XII.2016 i opak.125ml. Czy Zamawiający wyrazi zgodę na dostawę materiału z taką datą i opak. 125ml? Jeśli tak, to prosimy o doprecyzowanie ilości do oferty.

Odpowiedź na pytanie 14:

Nie

Pytanie 15:

Dotyczy Zadania nr 25, poz. 14,

Czy Zamawiający wyrazi zgodę na dostawę materiału w wielkości 100 ml zamiast 125ml?

Odpowiedź na pytanie 15:

Nie

Pytanie 16:

Dotyczy Zadania nr 25, poz. 21,

Zwracamy się z prośbą do Zamawiającego o doprecyzowanie jakie wzorce mętności powinniśmy zaoferować: formazynowe czy polimeryczne?

Odpowiedź na pytanie 16:

Formazynowe

Pytanie 17:

Dotyczy Zadania nr 25, poz. 25,

Czy Zamawiający wyrazi zgodę na zaoferowanie w pozycji 25 materiału CRM031-40G (Załącznik 2) lub 545 ERA (Załącznik 3)? Załączamy certyfikaty. W przypadku braku akceptacji, prosimy o podanie numeru katalogowego wzorca spełniającego Państwa wymagania.

Odpowiedź na pytanie 17:

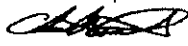
Tak - materiał CRM031-40G.


Specjalista
ds. zamówień publicznych i inwestycji
mgr inż. Waldemar Baczyński

ZAT. 1

TPH - Loamy Sand ² Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Number CRM356-100
Lot LRAA1180
Solvent (Matrix) Loamy Sand Soil
Hazard Irritant
Storage & Handling Store at 4°C.
Expiration Date See Sample Label
Certification Date: March 20, 2013
Certified By: 

Christopher Rucinski - QA Director

ISO Guide 34
Cert# AR-1470

ISO/IEC 17025
Cert# AT-1467

Analyte	Units	Certified ^{1,4} Value	k ⁵	Standard ² Deviation	Confidence Interval	Prediction Interval
Total Petroleum Hydrocarbons (TPH), (C6-C35)	mg/kg	3180 ± 846	2.00	2500	2300 - 5320	0.00 - 9600
Diesel Range Organics, C10-C20 (California LUFT)	mg/kg	611 ± 39.9	2.00	118	589 - 633	256 - 966

Additional Information

Description

- The sample is a soil containing TPH.
- The sample size provided is 100 g of soil.
- The soil has been sterilized to minimize degradation of the sample.
- The sample has been sized to 100 mesh.
- The sample has been intentionally prepared with an apparent headspace.
- The Diesel Range Organics Reference Value was determined by California LUFT, DRO C10-C20.

Storage

- The sample should be stored at 4°C.
- It has been determined to be stable for the duration of the expiration date.
- After sub-sampling replace cap securely and store remaining sample at 4°C.
- The shelf life of the product was determined by historic stability of similar CRM's.
- The expiration date may be extended based on stock and popularity upon successful stability testing by a 17025 accredited laboratory.
- Stability and shelf life after opening must be determined by the user, taking into account sampling frequency/volume and all local conditions.

Sample Preparation

- The soil is to be extracted and analyzed using an appropriate extraction and analytical method for detection of TPH.
- Mix well.
- No particle size reduction is necessary.
- Recommended minimum sampling size is 10g. The sample has been determined to be homogeneous to 1g.

Scope and Application

- The TPH in Soil Certified Reference Material (CRM) consists of a single amber glass sample jar, with a Teflon lined closure containing approximately 100 grams of soil, fortified with Total Petroleum Hydrocarbons.
- Being a natural matrix waste sample the analyst is challenged by the same preparation problems, analytical interferences, etc. as is typical for similar matrices received by the laboratory for analysis.
- Rigorous analyses identified, quantified, and certified various aliphatic and aromatic banding which are listed on the enclosed Certificate of Analysis.
- The sample has been analyzed by a minimum of 12 independent laboratories in a round-robin to meet the requirements specified by the ISO Guides 34 and 35, and ISO 17025.



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312 - 27


ZA ZGODNOŚĆ
Z ORYGINAŁEM



ZAT. A

TPH - Loamy Sand 2

CERTIFIED REFERENCE MATERIAL

Number CRM356-100
Lot LRAA1180
Solvent (Matrix) Loamy Sand Soil
Hazard Irritant
Storage & Handling Store at 4°C.
Expiration Date See Sample Label
Certification Date: March 20, 2013
Certified By:  Christopher Rucinski - QA Director

Evaluation of Results

The Reference Value, 95% confidence interval (C.I.) for the Reference Value and 95% Prediction Interval (P.I.) around the Reference Value were obtained by the methods identified in the 'Scope and Application' section of this Certificate of Analysis. Samples were selected in a random fashion from the beginning to the end of the bottling sequence and sent for analysis by an independent laboratory round-robin. The data produced in the round-robin was used to calculate reference values by the USEPA EMSL-CINN's computer program "BIWEIGHT".

The generated BIWEIGHT mean, BIWEIGHT standard deviation and BIWEIGHT standard deviation of the mean are used to calculate the 95% Confidence Interval (CI) for the mean and the 95% Prediction Interval (PI). For normally distributed data, the BIWEIGHT 95% CI compares well to the classical calculation method used to generate a 95% CI. For non-Gaussian data sets, the BIWEIGHT method is more robust in data treatment.

BIWEIGHT data are also used to calculate a 95% PI. The 95% PI compares well to a 95% tolerance limit calculated using classical methods. For normally distributed data, the BIWEIGHT 95% PI typically represents approximately a ± 2 BIWEIGHT standard deviation window around the BIWEIGHT mean. Again, the BIWEIGHT method is more robust than classical methods when handling non-Gaussian data sets.

Laboratories performing the same analytical procedures on a sample whose values have been determined by the BIWEIGHT method can assume that the true mean, as determined by the method, is within the 95% CI window. Laboratories analyzing the sample should have results within the 95% PI window 19 out of 20 analyses.

Laboratories should use the PI as guidance for laboratory performance.

Additional information on the program may be obtained by referring to the reference or by downloading the program from the EMSL-CINN web site.

Additionally contact RTC for additional guidance - 1(307)742-5452 - support@rt-corp.com - www.rt-corp.com

Health and Safety Information

All RTC Certified Reference Materials are intended only for professional use by properly trained laboratory personnel.

This CRM has been reviewed for both health and safety and shipping risks.

It is classified as non hazardous and is not classified as hazardous goods for shipping by road, sea or air transport.

A full international MSDS as a downloadable pdf file is available at www.rt-corp.com

1 Certified values are the robust statistical mean when prepared according to instructions from an interlaboratory Study and internal rigorous testing.

2 The standard deviation is the robust statistical standard deviation from the round robin interlaboratory study.

4 Expanded Uncertainty (U_{cr}m) - All uncertainty values in this document expressed as \pm value are expanded uncertainties.

5 k: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. Confidence Interval = 95%

Traceability: The standard was manufactured under an ISO 17025 certified quality system. The balance used to weigh raw materials is accurate to ± 0.0001 g and calibrated regularly using mass standards traceable to NIST. All dilutions were performed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO 17025 (AClass Cert AT-1467) and ISO GUIDE 34 (AClass Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

312 - 27


ZA ZGODNOŚĆ
ZORYGINAŁEM



Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Trace Metals - Sewage Sludge 3

Number: CRM031-40G
 Lot: 017359
 Solvent (Matrix): Sewage Sludge
 Hazard: Irritant
 Storage & Handling: Store at 4°C.
 Expiration Date: See Sample Label
 Certification Date: August 02, 2012
 Certified By:  Christopher Rucinski - QA Director

ISO Guide 34
 Cert# AR-1470

ISO/IEC 17025
 Cert# AT-1467

Analyte	Units	Certified ^{1,4} Value	k ⁵	Standard ² Deviation	Confidence Interval	Prediction Interval
Aluminum, Al <small>Traceable to NIST SRM 3101a Lot 80203</small>	mg/Kg	16,200 ± 1580	2.09	2,790	14,600 - 17,800	10,100 - 22,200
Antimony, Sb <small>Traceable to NIST SRM 3102a Lot 081229</small>	mg/Kg	72.6 ± 15.8	2.10	27.1	56.8 - 88.5	13.6 - 132
Arsenic, As <small>Traceable to NIST SRM 3103a Lot 090713</small>	mg/Kg	86.5 ± 10.6	2.06	22.3	75.8 - 97.2	39.3 - 134
Barium, Ba <small>Traceable to NIST SRM 3104a Lot 070222</small>	mg/Kg	781 ± 170	2.11	279	565 - 927	149 - 1,370
Beryllium, Be <small>Traceable to NIST SRM 3105a Lot 882757</small>	mg/Kg	54.6 ± 5.17	2.09	9.24	49.0 - 60.2	34.5 - 74.8
Boron, B <small>Traceable to NIST SRM 3107 Lot 070014</small>	mg/Kg	180 ± 19.0	2.18	24.7	138 - 182	102 - 218
Cadmium, Cd <small>Traceable to NIST SRM 3108 Lot 080331</small>	mg/Kg	87.7 ± 6.22	2.06	13.5	81.2 - 94.1	59.2 - 116
Calcium, Ca <small>Traceable to NIST SRM 3109a Lot 090829</small>	mg/Kg	44,300 ± 7520	2.12	11,800	35,800 - 52,800	17,900 - 70,600
Chromium, Cr (total) <small>Traceable to NIST SRM 3112a Lot 990807</small>	mg/Kg	109 ± 11.6	2.07	23.7	97.0 - 121	58.4 - 159
Cobalt, Co <small>Traceable to NIST SRM 3113 Lot 000890</small>	mg/Kg	93.1 ± 6.14	2.12	9.58	88.7 - 99.6	71.8 - 114
Copper, Cu <small>Traceable to NIST SRM 3114 Lot 801811</small>	mg/Kg	621 ± 27.1	2.07	55.5	595 - 648	504 - 739
Iron, Fe <small>Traceable to NIST SRM 3125a Lot 091031</small>	mg/Kg	19,600 ± 2410	2.10	4,140	17,400 - 21,700	10,600 - 28,500
Lead, Pb <small>Traceable to NIST SRM 3128 Lot 090721</small>	mg/Kg	304 ± 17.8	2.06	37.4	265 - 323	225 - 364
Lithium, Li <small>Traceable to NIST SRM 3129a</small>	mg/Kg	72.6 ± 11.3	2.18	14.7	60.6 - 84.6	38.3 - 107
Magnesium, Mg <small>Traceable to NIST SRM 3131a Lot 090302</small>	mg/Kg	8,360 ± 1270	2.12	1,980	7,190 - 9,530	4,000 - 12,700
Manganese, Mn <small>Traceable to NIST SRM 3132 Lot 090429</small>	mg/Kg	1,430 ± 252	2.10	433	1,190 - 1,670	487 - 2,370
Mercury, Hg <small>Traceable to NIST SRM 3133 Lot 081204</small>	mg/Kg	13.3 ± 1.92	2.09	3.58	11.4 - 15.1	5.62 - 20.9
Molybdenum, Mo <small>Traceable to NIST SRM 3134 Lot 881307</small>	mg/Kg	55.7 ± 9.00	2.08	17.3	47.5 - 63.8	18.8 - 92.5
Nickel, Ni <small>Traceable to NIST SRM 3136 Lot 000612</small>	mg/Kg	227 ± 12.3	2.06	25.8	214 - 240	173 - 282
Potassium, K <small>Traceable to NIST SRM 3141a Lot 091220</small>	mg/Kg	4,340 ± 284	2.10	487	4,060 - 4,620	3,280 - 5,400
Selenium, Se <small>Traceable to NIST SRM 3149 Lot 892106</small>	mg/Kg	122 ± 18.4	2.08	35.5	104 - 139	45.1 - 198
Silver, Ag <small>Traceable to NIST SRM 3151 Lot 892712</small>	mg/Kg	128 ± 5.56	2.12	8.57	122 - 134	108 - 147

Analyte	Units	Certified ^{1,4} Value	k ⁵	Standard ² Deviation	Confidence Interval	Prediction Interval
Sodium, Na <small>Traceable to NIST SRM 3152a Lot 010728</small>	mg/Kg	1,010 ± 104	2.16	145	909 - 1,110	680 - 1,340
Strontium, Sr <small>Traceable to NIST SRM 3153a Lot 990906</small>	mg/Kg	601 ± 42.0	2.16	58.3	558 - 644	488 - 734
Thallium, Tl <small>Traceable to NIST SRM 3159 Lot 800012</small>	mg/Kg	129 ± 13.9	2.10	23.8	114 - 143	76.7 - 181
Tin, Sn <small>Traceable to NIST SRM 3161a Lot 070330</small>	mg/Kg	118 ± 47.8	2.12	74.8	70.5 - 186	0.00 - 284
Titanium, Ti <small>Traceable to NIST SRM 3162a Lot 090906</small>	mg/Kg	64.0 ± 15.0	2.11	26.3	47.7 - 80.3	6.21 - 122
Vanadium, V <small>Traceable to NIST SRM 3165 Lot 882708</small>	mg/Kg	66.9 ± 4.92	2.09	8.79	61.8 - 72.0	47.8 - 88.0
Zinc, Zn <small>Traceable to NIST SRM 3166a Lot 091402</small>	mg/Kg	1,240 ± 64.3	2.07	132	1,160 - 1,320	957 - 1,520
Ammonia as N	mg/Kg	5,130 ± 1240	2.15	1,820	3,880 - 6,370	1,020 - 9,230
Kjeldahl nitrogen, total (TKN)	Wt%	3.88 ± 0.654	2.15	0.864	3.00 - 4.37	1.50 - 5.86
Nitrate as N <small>Traceable to NIST SRM 3185 Lot 090517</small>	mg/Kg	1,540 ± 150	2.31	130	1,400 - 1,690	1,210 - 1,880
pH <small>Traceable to NIST SRM 191c</small>	Units	6.89 ± 0.123	2.15	0.181	6.74 - 7.03	6.47 - 7.30
Phosphorus, total <small>Traceable to NIST SRM 3196a</small>	Wt%	2.27 ± 0.313	2.10	0.537	1.91 - 2.63	1.09 - 3.46
Total Solids (TS)	Wt%	91.3 ± 0.538	2.12	0.841	90.8 - 91.9	89.5 - 93.2
Volatile Solids, Total	Wt%	53.3 ± 1.60	2.18	2.22	51.4 - 55.2	48.2 - 58.5
Sulfur, S	mg/Kg	11,400 ± 1630	2.20	1,960	9,520 - 13,200	6,670 - 16,100

Additional Information

Description

A total sample size of 40 g is provided.
 The sample has been chemically and heat sterilized.
 The sample has been sized to 100 mesh.
 Recommended storage condition is 4°C.
 This reference material is suitable for digestion methods USEPA 3050B, 3051, and Aqua Regia digestions.

Storage

The sample should be stored at 4°C. It has been determined to be stable for the duration of the expiration date.
 After sub-sampling replace cap securely and store remaining sample at 4°C.
 The shelf life of the product was determined by historic stability of similar CRM's. The expiration date may be extended based on stock and popularity upon successful stability testing by a 17025 accredited laboratory.
 Stability and shelf life after opening must be determined by the user, taking into account sampling frequency/volume and all local conditions.

Sample Preparation

Determination of the percent moisture content of the material is required.
 Report all results on a dry weight basis.
 It is recommended that approximately one gram of the soil be digested for metals analysis.

Scope and Application



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Zat. 2

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Trace Metals - Sewage Sludge 3

Number: CRM031-40G

Lot: 017358

Solvent (Matrix): Sewage Sludge

Hazard: Irritant

Storage/Handling: Store at 4°C

Expiration Date: See Sample Label

Certification Date: August 02, 2012

Certified By: 

Christopher Rucinski - QA Director

Scope and Application

The Trace Metal in Sewage Sludge Certified Reference Material (CRM) consists of a single HDPE cup, with a Teflon lined closure containing approximately 40 grams of freeze sewage sludge from domestic origin. Being a natural matrix, sample the analyst is challenged by the same composition problems, analytical interferences, etc. as a typical for similar matrices received by the laboratory for analysis. Rigorous analyses identified, certified, and certified various aliphatic and aromatic banding which are listed on the enclosed Certificate of Analysis. The sample has been analyzed by a minimum of 12 independent laboratories in a round-robin to meet the requirements specified by the ISO Guides 34 and 35, and ISO 17025.

Evaluation of Results

The Reference Value, 95% confidence interval(CI), for the Reference Value and 95% Prediction Interval (PI) around the Reference Value were obtained by the methods identified in the Scope and Application section of this Certificate of Analysis. Samples were selected in a random fashion from the beginning to the end of the bottling sequence and sent for analysis by an independent laboratory round-robin. The data produced in the round-robin was used to calculate reference values by the USEPA, EMSL-CINN's computer program "BIWEIGHT".

The generated BIWEIGHT mean, BIWEIGHT standard deviation and BIWEIGHT standard deviation of the mean are used to calculate the 95% Confidence Interval (CI) for the mean and the 95% Prediction Interval (PI). For normally distributed data, the BIWEIGHT 95% CI compares well to the classical calculation method used to generate a 95% CI. For non-Gaussian data sets, the BIWEIGHT method is more robust in data treatment. BIWEIGHT data are also used to calculate a 95% PI. The 95% PI compares well to a 95% tolerance limit calculated using classical methods. For normally distributed data, the BIWEIGHT 95% PI typically represents approximately a 42 BIWEIGHT standard deviation window around the BIWEIGHT mean. Again, the BIWEIGHT method is more robust than classical methods when handling non-Gaussian data sets.

Laboratories performing the same analytical procedures on a sample whose values have been determined by the BIWEIGHT method can assume that the true mean, as determined by the method, is within the 95% CI window. Laboratories analyzing the sample should have results within the 95% PI window 19 out of 20 analyses. Laboratories should use the PI as guidance for laboratory performance.

Additional information on the program may be obtained by referring to the reference or by downloading the program from the EMSL-CINN web site. Additionally contact RTC for additional guidance - 1(303)742-5452 - support@rt-corp.com - www.rt-corp.com

Health and Safety Information

All RTC Certified Reference Materials are intended only for professional use by properly trained laboratory personnel. This CRM has been reviewed for both health and safety and shipping risks. It is classified as non-hazardous and is not classified as hazardous goods for shipping by road, sea or air transport.

A full international MSDS as a downloadable pdf file is available at www.rt-corp.com

1. Certified values are the robust statistical mean when prepared according to instructions from an Interlaboratory Study and internal rigorous testing.
2. The standard deviation is the robust standard deviation from the round robin interlaboratory study.
4. Expanded Uncertainty (U₉₅) - All uncertainty values in this document expressed as a value are expanded uncertainties.
5. k: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. Confidence interval = 95%

TRACEABILITY: The standard was manufactured under an ISO 17025 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All solutions were prepared gravimetrically. Additionally, in-house analyses are traceable to NIST SRMs where available and specified above.

HOMOGENEITY ASSESSMENT: Between-bottle homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled over the course of the bottling operation. Samples were taken in the following manner: the units produced in the bottling operation were divided into three chronological groups: those from the Early third, the Middle third, and the Late third (Groups). A pre-determined number of sample units were then randomly selected from each group. A subset of each group was then randomly selected for chemical analysis. The results of the chemical analysis were then compared by Single Factor Analysis of Variance (ANOVA).

UNCERTAINTY STATEMENT: Uncertainty values in this document are expressed as Expanded Uncertainty (U₉₅) corresponding to the 95% confidence interval. U₉₅ is derived from the standard uncertainty multiplied by the coverage factor k, which is obtained from a t-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO 17025 (ACIAS Cert. No. 1487) and ISO GUIDE 34 (ACIAS Cert. No. 1478).

MSDS reports for components containing greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Manufactured and certified by Sigma-Aldrich RTC, Inc.



ZA ZGODNOSC
Z ORYGINALEM

Zat. 2



A Waters Company

ZAT. 3

Certificate of Analysis

Lot No. 170212

Nutrients in Sludge

Catalog No. 545

Issue Date: February 15, 2012

Revision Date: Original

Certification

Parameter	Certified Value ¹ % (w/w)	Uncertainty ²	QC PALS™ ³ % (w/w)
ammonia as N (deionized water leach)	0.570	3.2%	0.342 - 0.798
ammonia as N (distillation)	1.01	6.7%	0.606 - 1.41
total kjeldahl nitrogen	4.14	23.6%	2.07 - 6.21
total organic carbon	33.8	9.8%	13.5 - 54.1
total phosphorus	1.91	14.5%	0.955 - 2.87

1. The Certified Values are equal to the mean recoveries for the parameters as determined in an interlaboratory round robin study and/or data generated internally at ERA. The certified values are based on an "as received" basis, assuming a 100% solids content.

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 using applicable methods, multiplied by a coverage factor which is equal to the student t factor at a 95% confidence interval at n-1 degrees of freedom.

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. This standard expires 2/2016. 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.

NOTE: Distillation and DI water leach values are provided for ammonia as N to show typical recoveries for these methodologies.

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

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