



Analytical Reference Materials
1,4-dioxane-d8 Standard

Catalog # 30614

Lot # A092259

110 Benner Circle Bellefonte, PA 16823-8812

(814) 353-1300

FOR LABORATORY USE ONLY. READ MSDS PRIOR TO USE.

RAW MATERIAL TEST INFORMATION AVAILABLE UPON REQUEST

MANUFACTURED UNDER RESTEK'S ISO 9001 REGISTERED QUALITY SYSTEM



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Certificate of Analysis

FOR LABORATORY USE ONLY-READ MSDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30614 **Lot No.:** A092259
Description : 1,4-dioxane-d8 Standard
1,4-Dioxane-d8 2000µg/mL, P&T Methanol, 1mL/ampul
Container Size : 2 mL **Pkg Amt:** > 1 mL
Expiration Date : December 2015 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	1,4-Dioxane-d8	2,000.8 µg/mL	+/-	11.7418	µg/mL	Gravimetric
	CAS # 17647-74-4		+/-	44.2995	µg/mL	Unstressed
	Purity 99%		+/-	44.4799	µg/mL	Stressed
Solvent:	P&T Methanol					
	CAS # 67-56-1					
	Purity 99%					

Column:
105m x .53mm x 3.0um
Rtx-502.2 (cat.#10910)

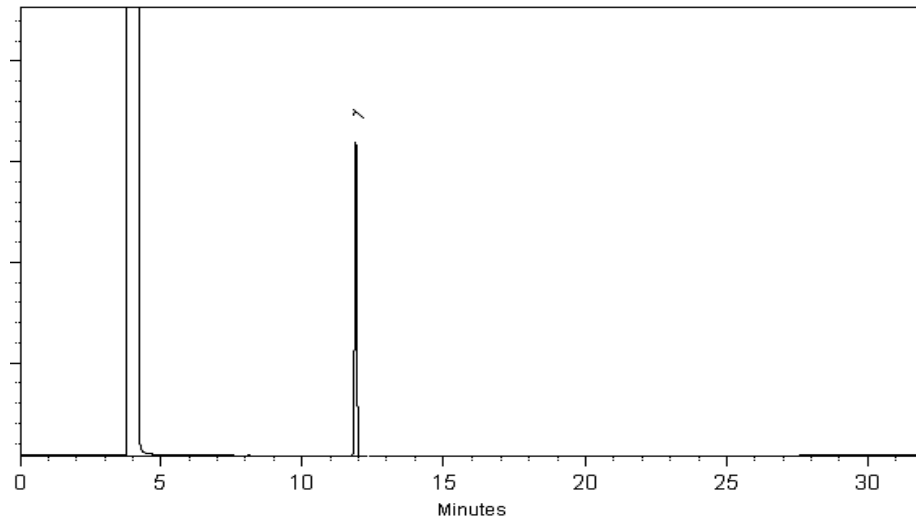
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



Diane Shaffer
Diane Shaffer - QA Analyst

Date Passed: 07-Dec-2012 Balance: 1128360905

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date of the unopened ampul stored at the recommended storage condition is the last day of the month listed in the expiration date field.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31840, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



Chemical Standard Batch Sheet

Lot #: A092259

Catalog #: 30614	Target: 2000 ug/mL	
Description: 1,4-dioxane-d8 Standard		
Solvent: P&T Methanol	Solvent Lot: 115869	Final Volume: 250 ml

Made by: Rebecca Lauver	Date: 12/5/2012 4:04:32PM		
Tested by: Diane Shaffer	Date: 12/6/2012 9:56:44AM		
Pass	By: Diane Shaffer	Date: 12/7/2012 4:06:49PM	
Packaged by: Brandon Reish / Brandon Reish	Date: 12/6/2012 8:51:43AM	No. Units: 148	Pkg Size: 1 mL
Balance Used: BEDEARMBALPC3 XP205	Serial #: 1128360905		

<u>Compound</u>	<u>CAS</u>	<u>Storage Location</u>	<u>Lot #</u>	<u>Purity</u>	<u>Target Conc(ug/mL)</u>	<u>Target</u>	<u>Actual</u>	<u>Calc Conc(ug/mL)</u>
1,4-Dioxane-d8	17647-74-4	R1014	EB0190V	0.99	2,000.00	500.00 mg	500.20 mg	2,000.8

QA Report: 1,4-dioxane-d8 Standard (Cat.#30614)

<u>COMPONENT</u>	Runs of Lot # A092259						Runs of Lot # A090094						P/F	
	Run #1	Run #2	Run #3	AVG	STD DEV	% RSD	Run #1	Run #2	Run #3	AVG	STD DEV	% RSD		%D MEAN
1,4-dioxane-d8	4019326	4004799	3896624	3973583	67043	1.69	3999184	3929913	3954996	3961364	35072	0.89	0.31	PASS