

November 01, 2017

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Olin L 17-25

Project Number - [none]

Attached are your analytical results for KMG - Olin L 17-25 received by Origins Laboratory, Inc. October 31, 2017. This project is associated with Origins project number Y710467-05.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - Olin L 17-25

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@6'	Y710467-05	Soil	October 31, 2017 13:55	10/31/2017 17:22

Origins Laboratory, Inc.



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Origins Laboratory F-012207-01-R1  
Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: Y710467 Client: Tasman  
 Client Project ID: KMG - Olin L 17-25  
 Checklist Completed by: DM Shipped Via: FD  
 Date/time completed: 10-31-17 1742 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A  
 Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_  
 Cooler Number/Temperature: 37 °C \_\_\_\_\_ °C \_\_\_\_\_ °C (Describe)  
 Thermometer ID: 6003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)?</sup>	<input checked="" type="checkbox"/>			PA
Is a chain-of-custody (COC) present and filled out completely <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)?</sup> (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: [Signature] Date/Time Reviewed: 10-31-17 1743

Origins Laboratory, Inc.

*Jefe Pellegrini*

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 Project: KMG - Olin L 17-25

**B01@6'**  
**10/31/2017 1:55:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y710467-05 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7J3104	10/31/2017	10/31/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 83.7 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B7J3103	10/31/2017	11/01/2017	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 97.9 % 70-130 " " "  
*Surrogate: Toluene-d8* 100 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 100 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.85		pH Units	1	B7J3105	10/31/2017	10/31/2017	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.163		mmhos/cm	"	B7J3106	10/31/2017	"	
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 Project Number: [none]  
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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B7J3103 - EPA 5030 (soil)</b>										
<b>Blank (B7J3103-BLK1)</b>										
					Prepared: 10/31/2017 Analyzed: 10/31/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							O-01, U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	77		ug/kg	62.5		123	70-130			
Surrogate: Toluene-d8	59		"	62.5		95.1	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7J3103 - EPA 5030 (soil)**

**LCS (B7J3103-BS1)**

Prepared: 10/31/2017 Analyzed: 10/31/2017

Benzene	0.097	0.002	mg/kg	0.100		97.1	77.1-124			
Toluene	0.091	0.002	"	0.100		91.0	74.5-128			
Ethylbenzene	0.097	0.002	"	0.100		96.7	66.4-127			
m,p-Xylene	0.198	0.004	"	0.200		99.1	76.6-124			
o-Xylene	0.100	0.002	"	0.100		99.6	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	73		ug/kg	62.5		117	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7J3103 - EPA 5030 (soil)**

<b>Matrix Spike (B7J3103-MS1)</b>	<b>Source: Y710386-01</b>			<b>Prepared: 10/31/2017 Analyzed: 10/31/2017</b>						
Benzene	0.093	0.002	mg/kg	0.100	93.0	71.8-126				
Toluene	0.084	0.002	"	0.100	83.7	65.1-130				
Ethylbenzene	0.084	0.002	"	0.100	83.8	62.2-130				
m,p-Xylene	0.166	0.004	"	0.200	83.2	46.5-137				
o-Xylene	0.084	0.002	"	0.100	83.6	54.2-134				
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5	104	70-130				
Surrogate: Toluene-d8	62		"	62.5	98.6	70-130				
Surrogate: 4-Bromofluorobenzene	66		"	62.5	106	70-130				

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7J3103 - EPA 5030 (soil)**

<b>Matrix Spike Dup (B7J3103-MSD1)</b>	<b>Source: Y710386-01</b>			<b>Prepared: 10/31/2017 Analyzed: 10/31/2017</b>						
Benzene	0.098	0.002	mg/kg	0.100	97.9	71.8-126	5.11	11.3		
Toluene	0.089	0.002	"	0.100	89.4	65.1-130	6.68	15.4		
Ethylbenzene	0.087	0.002	"	0.100	86.9	62.2-130	3.61	19.6		
m,p-Xylene	0.174	0.004	"	0.200	87.0	46.5-137	4.49	19.2		
o-Xylene	0.088	0.002	"	0.100	88.4	54.2-134	5.58	17.9		
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5	103	70-130				
Surrogate: Toluene-d8	60		"	62.5	96.3	70-130				
Surrogate: 4-Bromofluorobenzene	65		"	62.5	103	70-130				

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Extractable Petroleum Hydrocarbons by 8015C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7J3104 - EPA 3550B**

**Blank (B7J3104-BLK1)**

Prepared: 10/31/2017 Analyzed: 11/01/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	33		"	50.0		66.8	59-131			

**LCS (B7J3104-BS1)**

Prepared: 10/31/2017 Analyzed: 10/31/2017

Diesel (C10-C28)	834	50.0	mg/kg	1000		83.4	64-121			
Residual Range Organics (C28-C40)	858	200	"	1000		85.8	58-124			
Surrogate: o-Terphenyl	47		"	50.0		93.7	59-131			

**Matrix Spike (B7J3104-MS1)**

Source: Y710362-01

Prepared: 10/31/2017 Analyzed: 10/31/2017

Diesel (C10-C28)	818	50.0	mg/kg	1000	ND	81.8	53-125			
Residual Range Organics (C28-C40)	901	200	"	1000	15.8	88.6	47-133			
Surrogate: o-Terphenyl	46		"	50.0		91.5	59-131			

**Matrix Spike Dup (B7J3104-MSD1)**

Source: Y710362-01

Prepared: 10/31/2017 Analyzed: 10/31/2017

Diesel (C10-C28)	769	50.0	mg/kg	1000	ND	76.9	53-125	6.28	20	
Residual Range Organics (C28-C40)	806	200	"	1000	15.8	79.0	47-133	11.4	20	
Surrogate: o-Terphenyl	44		"	50.0		88.9	59-131			

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**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B7J3105 - NO PREP</b>										
<b>Duplicate (B7J3105-DUP1)</b>		<b>Source: Y710386-01</b>			Prepared: 10/31/2017 Analyzed: 10/31/2017					
pH	8.93		pH Units		9.49			6.08	25	
<b>Batch B7J3106 - NO PREP</b>										
<b>Blank (B7J3106-BLK1)</b>		Prepared: 10/31/2017 Analyzed: 10/31/2017								
Specific Conductance (EC)	0.00590		mmhos/cm							
<b>Duplicate (B7J3106-DUP1)</b>		<b>Source: Y710386-01</b>			Prepared: 10/31/2017 Analyzed: 10/31/2017					
Specific Conductance (EC)	0.493		mmhos/cm		0.551			11.1	25	

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**Notes and Definitions**

U Sample is Non-Detect.

O-01 This compound is a common laboratory contaminant.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President