Columbia LABORATORIES
A Tentamus Company

12423 NE Whitaker Way
Portland, OR 97230
503-254-1794

Report Number: 23-010339/D003.R000
Report Date: 09/09/2023
ORELAP#: OR100028
Purchase Order:
Received: 08/30/23 15:01

Customer: NW Natural Goods
Product identity: HEMP - RB 0116
Client/Metrc ID: .
Laboratory ID: 23-010339-0001

Summary

Potency:

Analyte per 4g	Result	Limits	Units	Status
CBC per 4g	0.209		mg/4g	
CBD per 4g	26.4		mg/4g	
CBG per 4g	0.752		mg/4g	

CBD-Total per Serving Size 26.4 mg/4g

THC-Total per Serving Size <LOQ

(Reported in milligrams per serving)

Residual Solvents:

All analytes passing and less than LOQ.

Pesticides:

Analyte	Result (mg/kg)	Limits (mg/kg)	Status
Multi-Residue Pesticide Profile	< LOQ for all analytes		

Metals:

Less than LOQ for all analytes.

Microbiology:

Less than LOQ for all analytes.

Testing in accordance with: OAR 333-007-0430

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Purchase Order:
Received: 08/30/23 15:01

Customer: NW Natural Goods

Product identity: HEMP - RB 0116
Client/Metrc ID: .
Sample Date:
Laboratory ID: 23-010339-0001
Evidence of Cooling: No
Temp: 21.0
Relinquished by: rams
Serving Size #1: 4 g

Sample Results

Potency per 4g **Method:** J AOAC 2015 V98-6 (mod)[b] **Units** mg/se **Batch:** 2310563 **Analyze:** 8/31/23 9:56:00 PM

Analyte	Result	Limits	Units	LOQ	Notes
CBC per 4g	0.209		mg/4g	0.128	
CBC-A per 4g	< LOQ		mg/4g	0.128	
CBC-Total per 4g	< LOQ		mg/4g	0.240	
CBD per 4g	26.4		mg/4g	0.128	
CBD-A per 4g	< LOQ		mg/4g	0.128	
CBD-Total per 4g	26.4		mg/4g	0.240	
CBDV per 4g	< LOQ		mg/4g	0.128	
CBDV-A per 4g	< LOQ		mg/4g	0.128	
CBDV-Total per 4g	< LOQ		mg/4g	0.239	
CBE per 4g	< LOQ		mg/4g	0.128	
CBG per 4g	0.752		mg/4g	0.128	
CBG-A per 4g	< LOQ		mg/4g	0.128	
CBG-Total per 4g	0.752		mg/4g	0.239	
CBL per 4g	< LOQ		mg/4g	0.128	
CBL-A per 4g	< LOQ		mg/4g	0.128	
CBL-Total per 4g	< LOQ		mg/4g	0.240	
CBN per 4g	< LOQ		mg/4g	0.128	
CBT per 4g	< LOQ		mg/4g	0.128	
Δ8-THCV per 4g	< LOQ		mg/4g	0.128	
Δ10-THC-9R per 4g	< LOQ		mg/4g	0.128	
Δ10-THC-9S per 4g	< LOQ		mg/4g	0.128	
Δ10-THC-Total per 4g	< LOQ		mg/4g	0.256	
Δ8-THC per 4g	< LOQ		mg/4g	0.128	
Δ9-THC per 4g	< LOQ		mg/4g	0.128	
delta-9-THCP per 4g	< LOQ		mg/4g	0.128	
exo-THC per 4g	< LOQ		mg/4g	0.128	
THC-A per 4g	< LOQ		mg/4g	0.128	
THC-Total per 4g	< LOQ		mg/4g	0.240	
THCV per 4g	< LOQ		mg/4g	0.128	
THCV-A per 4g	< LOQ		mg/4g	0.128	
THCV-Total per 4g	< LOQ		mg/4g	0.240	
Total Cannabinoids per 4g	27.4		mg/4g		

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Microbiology

Analyte	Result	Limits	Units	LOQ	Batch	Analyzed	Method	Status	Notes
E.coli	< LOQ		cfu/g	10	2310497	09/02/23	AOAC 991.14 (Petrifilm)þ		
Total Coliforms	< LOQ		cfu/g	10	2310497	09/02/23	AOAC 991.14 (Petrifilm)þ		
Mold (RAPID Petrifilm)	< LOQ		cfu/g	10	2310498	09/02/23	AOAC 2014.05 (RAPID)þ		
Yeast (RAPID Petrifilm)	< LOQ		cfu/g	10	2310498	09/02/23	AOAC 2014.05 (RAPID)þ		

Solvents

Method: Residual Solvents by GC/MSþ **Units** µg/g **Batch** 2310644 **Analyze** 09/06/23 10:31 AM

Analyte	Result	Limits	LOQ	Status	Notes	Analyte	Result	Limits	LOQ	Status	Notes
1,4-Dioxane	< LOQ	380	100	pass		2-Butanol	< LOQ	5000	200	pass	
2-Ethoxyethanol	< LOQ	160	30.0	pass		2-Methylbutane (Isopentane)	< LOQ		200		
2-Methylpentane	< LOQ		30.0			2-Propanol (IPA)	< LOQ	5000	200	pass	
2,2-Dimethy butane	< LOQ		30.0			2,2-Dimethylpropane (neo-pentane)	< LOQ		200		
2,3-Dimethy butane	< LOQ		30.0			3-Methylpentane	< LOQ		30.0		
Acetone	< LOQ	5000	200	pass		Acetonitrile	< LOQ	410	100	pass	
Benzene	< LOQ	2.00	1.00	pass		Butanes (sum)	< LOQ	5000	400	pass	
Cyclohexane	< LOQ	3880	200	pass		Ethyl acetate	< LOQ	5000	200	pass	
Ethyl benzene	< LOQ		200			Ethyl ether	< LOQ	5000	200	pass	
Ethylene glycol	< LOQ	620	200	pass		Ethylene oxide	< LOQ	50.0	20.0	pass	
Hexanes (sum)	< LOQ	290	150	pass		Isopropyl acetate	< LOQ	5000	200	pass	
Isopropy benzene (Cumene)	< LOQ	70.0	30.0	pass		m,p-Xylene	< LOQ		200		
Methanol	< LOQ	3000	200	pass		Methylene chloride	< LOQ	600	60.0	pass	
Methylpropane (Isobutane)	< LOQ		200			n-Butane	< LOQ		200		
n-Heptane	< LOQ	5000	200	pass		n-Hexane	< LOQ		30.0		
n-Pentane	< LOQ		200			o-Xylene	< LOQ		200		
Pentanes (sum)	< LOQ	5000	600	pass		Propane	< LOQ	5000	200	pass	
Tetrahydrofuran	< LOQ	720	100	pass		Toluene	< LOQ	890	100	pass	
Total Xylenes	< LOQ		400			Total Xylenes and Ethyl benzene	< LOQ	2170	600	pass	

Pesticides

Method: AOAC 2007.01 & EN 15662 (mod)þ **Units** mg/kg **Batch** 2310627 **Analyze** 09/05/23 04:20 PM

Analyte	Result	Limits	Status	Notes
Multi-Residue Pesticide Profile	< LOQ for all analytes			

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Metals

Analyte	Result	Limits	Units	LOQ	Batch	Analyzed	Method	Status	Notes
Arsenic¥	< LOQ	0.200	mg/kg	0.0145	2310670	09/06/23	AOAC 2013.06 (mod.)þ	pass	
Cadmium¥	< LOQ	0.200	mg/kg	0.0145	2310670	09/06/23	AOAC 2013.06 (mod.)þ	pass	
Lead¥	< LOQ	0.500	mg/kg	0.0145	2310670	09/06/23	AOAC 2013.06 (mod.)þ	pass	
Mercury¥	< LOQ	0.100	mg/kg	0.00726	2310670	09/06/23	AOAC 2013.06 (mod.)þ	pass	

Nutrition

Analyte	Result	Limits	Units	LOQ	Batch	Analyzed	Method	Status	Notes
Moisture (Loss on Drying)	18.7		g/100g	0.10	2310552	08/31/23	AOAC 925.10 (mod.)þ		
Water Activity	0.698		Aw	0.030	2310567	09/01/23	AOAC 978.18þ		

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Abbreviations

Limits: Action Levels per OAR-333-007-0400, OAR-333-007-0210, OAR-333-007-0220, CCR title 16-division 42. BCC-section 5723

Limit(s) of Quantitation (LOQ): The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence.

ᵇ = ISO/IEC 17025:2017 accredited method.
¥ = TNI accredited analyte.

Units of Measure

cfu/g = Colony forming units per gram
g = g
g/100g = Grams per 100 Grams
µg/g = Microgram per gram
mg/kg = Milligram per kilogram = parts per million (ppm)
mg/4g = Milligram per 4g
% = Percentage of sample
Aw = Water Activity
% wt = µg/g divided by 10,000

Approved Signatory

Derrick Tanner
General Manager

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Cannabis Multi-Residue Profile, Limits of Quantitation

Compound	LOQ (mg/kg)
Abamectin	0.100
Acephate	0.100
Acequinocyl	0.100
Acetamiprid	0.020
Acetochlor	0.100
Acrinathrin	0.100
Alachlor	0.100
Aldicarb	0.100
Aldicarb sulfoxide	0.100
Aldoxycarb (Aldicarb-sulfone)	0.100
Aldrin	0.100
Ametoctradin	0.020
Ametryn	0.500
Aspon	0.100
Asulam	0.100
Atrazine	0.100
Atrazine-desethyl	0.100
Azinphos-ethyl	0.020
Azinphos-methyl	0.020
Azoxystrobin	0.020
Benalaxyl	0.020
Bendiocarb	0.020
Benfluralin	0.100
Benoxacor	0.050
Bensulide	0.050
BHC alpha isomer	0.100
BHC beta isomer	0.100
BHC delta isomer	0.500
Bifenazate	0.020
Bifenthrin	0.020
Boscalid	0.020
Bromophos-ethyl	0.100
Bromophos-methyl	0.200
Bromopropylate	0.100
Bromuconazole	0.100
Buprimate	0.020
Buprofezin	0.050
Butachlor	0.500
Butralin	0.200
Butylate	0.100
Cadusafos	0.020
Captan	1.000
Carbaryl	0.050
Carbendazim	0.100
Carbofuran	0.020
Carbophenothion	0.200
Carboxin	0.020
Carfentrazone-ethyl	0.100
Chlorantraniliprole	0.020
Chlordane, cis-	0.200
Chlordane, trans-	0.200
Chlorfenapyr	0.500
Chlorfenson	0.200
Chlorfenvinphos	0.050
Chlorobenzilate	0.100
Chloroneb	0.200
Chlorpyrifos	0.050
Chlorpyrifos-methyl	0.200
CIPC	1.000
Clethodim	0.050
Clethodim Sulfone	0.050
Clethodim Sulfoxide	0.050
Clofentezine	0.020
Clomazone	0.020
Clothianidin	0.200
Coumaphos	0.050
Crotoxyphos	0.020
Cyanazine	0.020
Cyanofenphos	0.020
Cyantraniliprole	0.050
Cyazofamid	0.020
Cycloate	0.100
Cyfluthrin	0.200
Cyhalothrin, lambda	0.200
Cymoxanil	0.050
Cypermethrin	0.200
Cyprodinil	0.100
Dacthal	0.100
Damnozide	0.100
DCPMU	0.050
DDD, o,p'-	0.100
DDD, p,p'-	0.100
DDE, o,p'-	0.100
DDE, p,p'-	0.100
DDT, o,p'-	0.100
DDT, p,p'-	0.100
DEF (Tribufos)	0.100
Deltamethrin	0.100
Desmedipham	0.100
Diallate	0.100
Diazinon	0.020
Diazoxon	0.100
Dichlobenil	0.100
Dichlofluanid	0.100
Dichlorvos	0.100
Diclobutrazol	0.050
Dicofol	0.100
Dicrotophos	0.050
Dieldrin	0.100
Diethofencarb	0.020
Diethyltoluamide (DEET)	0.050
Difenoconazole	0.100
Dimethenamid	0.050
Dimethoate	0.050
Dimethomorph	0.050
Diniconazole	0.200
Dinotefuran	0.200
Dioxathion	0.100
Diphenamid	0.020
Diphenylamine	0.100
Disulfoton	0.100
Disulfoton sulfone	0.100
Disulfoton sulfoxide	0.100
Diuron	0.050
Edifenphos	0.050
Endosulfan alpha	0.200
Endosulfan beta	0.200
Endosulfan sulfate	0.100
Endrin	0.100
EPN	0.050
EPTC	0.100
Esfenvalerate/Fenvalerate	0.200
Etaconazole	0.100
Ethalfluralin	0.100
Ethiofencarb	0.050
Ethion	0.200
Ethirimol	0.100
Ethofumesate	0.050
Ethoprophos	0.020
Etofenprox	0.020
Etoxazole	0.020
Etridiazole	0.100
Etrimfos	0.020
Famoxadone	0.200
Famphur	0.100
Fenamidone	0.020
Fenamiphos	0.020
Fenamiphos sulfone	0.020
Fenamiphos sulfoxide	0.020
Fenazaquin	0.100
Fenbuconazole	0.100
Fenchlorphos	0.100
Fenchlorphos-oxon	0.100
Fenhexamid	0.100
Fenitrothion	0.100
Fenobucarb	0.050
Fenoxycarb	0.020
Fenpropathrin	0.050
Fenpyroximate	0.020
Fenson	0.100
Fensulfothion	0.020
Fensulfothion oxon	0.020
Fensulfothion sulfone	0.100
Fensulfothion-oxon-sulfone	0.020
Fenthion	0.050
Fenthion oxon	0.020
Fenthion oxon sulfone	0.100
Fenthion sulfone	0.050
Fenuron	0.020
Fipronil	0.100
Flonicamid	0.100
Fluchloralin	0.100
Flucythrinate	0.100
Fludioxonil	0.200
Flufenacet	0.020
Flumioxazin	0.100
Fluometuron	0.020
Fluopicolide	0.050
Fluopyram	0.020
Fluoxastrobin	0.050
Flupyradifurone	0.020
Fluridone	0.100
Flusilazole	0.020
Flutolanil	0.020
Flutriafol	0.020
Fluvalinate, tau-	0.100
Fluxapyroxad	0.020

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Cannabis Multi-Residue Profile, Limits of Quantitation

Compound	LOQ(mg/kg)
Fomesafen	0.100
Fonofos	0.100
Forchlorfenuron	0 050
Formetanate	0.050
Furathiocarb	0.020
Heptachlor	0.100
Heptachlor epoxide	0.100
Heptenophos	0.100
Hexachlorobenzene	0.100
Hexaconazole	0.100
Hexazinone	0.100
Hexythiazox	0.020
Imazalil	0.100
Imidadoprid	0.100
Indaziflam	0.020
Indoxacarb	0.020
Iprobenfos	0.100
Iprodione	0.100
Isobenzan	0.100
Isocarbophos	0.500
Isodrin	0.100
Isofenphos	0 050
Isofenphos-methyl	0.020
Isofenphos oxon	0.050
Isoprocarb	0.020
Isopropalin	0.200
Isoprothiolane	0.050
Isoproturon	0.050
Isoxaben	0.050
Isoxaflutole	0.050
Kresoxim-methyl	0.050
Lactofen	0.500
Lenacil	0.100
Lindane (gamma-BHC)	0.100
Linuron	0.020
Malaoxon	0.050
Malathion	0.050
Mandipropamid	0.020
Mecarbam	0.020
Mepanipyrim	0 050
Merphos	0.500
Metalaxyl	0.050
Metaldehyde	0 050
Metconazole	0.100
Methacrifos	0.100
Methamidophos	0.050
Methidathion	0.050
Methiocarb	0.050
Methiocarb sulfone	0.100
Methiocarb sulfoxide	0.100
Methomyl	0.100
Methoxychlor	0.100
Methoxyfenozide	0.020
Metobromuron	0.050
Metolachlor	0.100
Metolcarb	0.050
Metrafenone	0.050
Metribuzin	0.100
Mevinphos	0.100
Mexacarbate	0 020
MGK 264	0 020
Mirex	0.100
Molinate	0 050
Monocrotophos	0.100
Monolinuron	0 020
Myclobutanil	0 050
Naled	0.100
Napropamide	0 050
Neburon	0 020
Nitrapyrin	0.100
Norflurazon	0 050
Omethoate	0.100
O-Phenylphenol	0.100
Oxadixyl	0.100
Oxamyl	0.100
Oxamyl-oxime	0.100
Oxychlordane	0.100
Oxydemeton-Methyl	0.100
Oxythioquinox	0 200
Paclobutrazol	0 050
Paraoxon-ethyl	0 020
Paraoxon methyl	0.100
Parathion ethyl	0.100
Parathion methyl	0 200
Penconazole	0 050
Pendimethalin	0 050
Perflufen	0 020
Pertachloroaniline	0.100
Pertachloroanisole	0.100
Pentachlorobenzene (PCB)	0.100
Pentachlorothioanisole (PCTA)	0.100
Perthiopyrad	0 020
Permethrin	0 050
Petthane	0.100
Phenmedipham	0 050
Phenthoate	0 050
Phorate	0 050
Phorate Sulfone	0 050
Phorate Sulfoxide	0 050
Phosalone	0 050
Phosmet	0.100
Phosphamidon	0 050
Phoxim	0 050
Piroxaden	0 020
Piperonyl butoxide	0 050
Pirimicarb	0 020
Pirimiphos-methyl	0 050
Pirimiphos-ethyl	0 020
Prallethrin	0.100
Prochloraz	0 020
Procymidone	0.100
Profenofos	0.100
Profluralin	0.100
Promecarb	0 050
Prometon	0.100
Prometryn	0 020
Propachlor	0 020
Propamocarb	0.050
Propanil	0.050
Propargite	0.050
Propazine	0.020
Propetamphos	0.050
Propham	0.050
Propiconazole	0.050
Propoxur	0.050
Propoxycarbazone Na	0.050
Propyzamide	0.050
Prothiofos	0.100
Pyraclostrobin	0.020
Pyrazophos	0.050
Pyrethrins	0.050
Pyridaben	0.020
Pyridafol	0.100
Pyridate	0.020
Pyrimethanil	0.050
Pyriproxifen	0.020
Pyroxasulfone	0.020
Pyroxsulam	0.020
Quinalphos	0.050
Quinoxyfen	0.050
Quintozene (PCNB)	0.200
Resmethrin	0.050
Rotenone	0.050
S421	0.100
Simazine	0.100
Simetryn	0 200
Spinetoram	0.020
Spinosad	0.050
Spirodiclofen	0.100
Spiromesifen	0.050
Spirotetramat	0.050
Spiroxamine	0.020
Sulfotep	0.050
Sulfoxaflor	0.050
Sulprofos	0.020
Tebuconazole	0.100
Tebufenozide	0.020
Tebuthiuron	0.020
Tecnazene	0.100
Tefluthrin	0.100
Terbufos	0.020
Terbufos sulfone	0 050
Terbufos sulfoxide	0.050
Terbuthylazine	0.020
Terbutryn	0.020
Tetrachlorvinphos	0.050
Tetraconazole	0.050
Tetradifon	0.200
Tetramethrin	0.050
Tetrasul	0.100
Thiabendazole	0.100
Thiabendazole, 5-hydroxy	0.100
Thiadoprid	0.050
Thiamethoxam	0.100
Thiobencarb	0.050
Thiodicarb	0.050
Thiophanate-methyl	0.050

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Cannabis Multi-Residue Profile, Limits of Quantitation

Compound	LOQ(mg/kg)	Compound	LOQ(mg/kg)	Compound	LOQ(mg/kg)
Tolclofos-methyl	0.100	Triazophos	0 020	Trifloxystrobin	0 020
Triforin	0.100	Tolylfluanid	0.050	Triticonazole	0.050
Tralkoxydim	0.100	Tridiphane	0 500	Vinclozolin	0.100
Triadimefon	0 050	Triflumizole	0 020	Zoxamide	0.020
Triallate	0.100	Trifluralin	0.100		

LOQ = Limit of Quantitation, mg/kg
Factors affecting the LOQ include instrumentation sensitivity for a particular analyte, sample size, moisture content (percent solids) of the sample, effectiveness of the cleanup on the sample extract, and especially the type of sample matrix.

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Hemp & Cannabis
Chain of Custody

Northwest-Natrual-
Goods-1893339831

ORELAP ID: OR100028 ANAB ISO 17025 ID: AT1508

[redacted]

Project Information
Project Name: HEMP - RB 0116
PO Number: N/A
Turnaround Time: 5 Business Days | Rush, For Micro Testing | Standard
Samples Delivered to Laboratory: Schedule Pick-Up
Cannabis Type: Industrial

[redacted]

#	Sample Name Test	Material	Amount Provided	Reporting Unit	Serving Size	H0010 - Potency Cannabinoid Basic + Extended Profile	P2320 - Pesticides - Multi Residue Profile	H0008 - Residual Solvents - OR	H0013 - Heavy Metals Profile OR (As, Cd, Pb & Hg)	M026 - Total Coliforms + E.Coli	M265 - Yeast and Mold	N190 - Moisture as Loss on Drying	N300 - Water Activity
1	HEMP - RB 0116	Edible	20 units for sale	mg/g & mg/serving	4 g	✓	✓	✓	✓	✓	✓	✓	✓

Relinquished By	Date	Time	Temp., °C
Kristen Johnson	8/29/2023	13:07	
BR	8/30/2023	11:00	21.0

Received By	Date	Time	Received Temp., °C	Evidence of Cooling?
BR	8/30/2023	10:26		No
rda	8/30/2023	15:01		No

Samples submitted to Columbia Laboratories with testing requirements constitute an agreement for services in accordance with the current terms of services associated with this COC. By signing "Relinquished by" you are agreeing to these terms.

Columbia Laboratories
12423 NE Whitaker Way
Portland, OR 97230

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Columbia LABORATORIES
A Tentamus Company

12423 NE Whitaker Way
Portland, OR 97230
503-254-1794

Report Number: 23-010339/D003.R000
Report Date: 09/09/2023
ORELAP#: OR100028
Purchase Order:
Received: 08/30/23 15:01

Revision: 2 Document ID: 7087
Legacy ID: CFL-E33Effective:

Laboratory Quality Control Results

Residual Solvents — Batch ID: 2310573

Method Blank					Laboratory Control Sample							
Analyte	Result		LOQ	Notes	Result	Spike	Units	%Rec	Limits			Notes
Propane	ND	<	200		538	584	µg/g	92.1	60	-	120	
Isobutane	ND	<	200		630	767	µg/g	82.1	60	-	120	
Butane	ND	<	200		639	782	µg/g	81.7	60	-	120	
2,2-Dimethylpropane	ND	<	200		800	939	µg/g	85.2	60	-	120	
Methanol	ND	<	200		1740	1670	µg/g	104.2	60	-	120	
Ethylene Oxide	ND	<	30		51.1	57.1	µg/g	89.5	60	-	120	
2-Methylbutane	ND	<	200		1550	1680	µg/g	92.3	60	-	120	
Pentane	ND	<	200		1540	1670	µg/g	92.2	60	-	120	
Ethanol	ND	<	200		1530	1660	µg/g	92.2	70	-	130	
Ethyl Ether	ND	<	200		1540	1670	µg/g	92.2	60	-	120	
2,2-Dimethylbutane	ND	<	30		175	189	µg/g	92.6	60	-	120	
Acetone	ND	<	200		1570	1670	µg/g	94.0	60	-	120	
2-Propanol	ND	<	200		1520	1630	µg/g	93.3	60	-	120	
Ethyl Formate	ND	<	500		1370	1600	µg/g	85.6	70	-	130	
Acetonitrile	ND	<	100		455	492	µg/g	92.5	60	-	120	
Methyl Acetate	ND	<	500		1450	1600	µg/g	90.6	70	-	130	
2,3-Dimethylbutane	ND	<	30		171	180	µg/g	95.0	60	-	120	
Dichloromethane	ND	<	60		452	488	µg/g	92.6	60	-	120	
2-Methylpentane	ND	<	30		154	182	µg/g	84.6	60	-	120	
MTBE	ND	<	500		1440	1610	µg/g	89.4	70	-	130	
3-Methylpentane	ND	<	30		157	177	µg/g	88.7	60	-	120	
Hexane	ND	<	30		164	177	µg/g	92.7	60	-	120	
1-Propanol	ND	<	500		1450	1600	µg/g	90.6	70	-	130	
Methylethylketone	ND	<	500		1430	1610	µg/g	88.8	70	-	130	
Ethyl acetate	ND	<	200		1480	1630	µg/g	90.8	60	-	120	
2-Butanol	ND	<	200		1460	1630	µg/g	89.6	60	-	120	
Tetrahydrofuran	ND	<	100		456	488	µg/g	93.4	60	-	120	
Cyclohexane	ND	<	200		1440	1610	µg/g	89.4	60	-	120	
2-methyl-1-propanol	ND	<	500		1360	1610	µg/g	84.5	70	-	130	
Benzene	ND	<	1		4.39	4.79	µg/g	91.6	60	-	120	
Isopropyl Acetate	ND	<	200		1490	1650	µg/g	90.3	60	-	120	
Heptane	ND	<	200		1440	1630	µg/g	88.3	60	-	120	
1-Butanol	ND	<	500		1490	1600	µg/g	93.1	70	-	130	
Propyl Acetate	ND	<	500		1370	1600	µg/g	85.6	70	-	130	
1,4-Dioxane	ND	<	100		429	523	µg/g	82.0	60	-	120	
2-Ethoxyethanol	ND	<	30		148	179	µg/g	82.7	60	-	120	
Methylisobutylketone	ND	<	500		1310	1600	µg/g	81.9	70	-	130	
3-Methyl-1-butanol	ND	<	500		1330	1600	µg/g	83.1	70	-	130	
Ethylene Glycol	ND	<	200		394	506	µg/g	77.9	60	-	120	
Toluene	ND	<	100		422	496	µg/g	85.1	60	-	120	
Isobutyl Acetate	ND	<	500		1370	1610	µg/g	85.1	70	-	130	
1-Pentanol	ND	<	500		1470	1600	µg/g	91.9	70	-	130	
Butyl Acetate	ND	<	500		1280	1610	µg/g	79.5	70	-	130	
Ethylbenzene	ND	<	200		752	978	µg/g	76.9	60	-	120	
m,p-Xylene	ND	<	200		756	994	µg/g	76.1	60	-	120	
o-Xylene	ND	<	200		740	982	µg/g	75.4	60	-	120	
Cumene	ND	<	30		120	171	µg/g	70.2	60	-	120	
Anisole	ND	<	500		1200	1600	µg/g	75.0	70	-	130	
DMSO	ND	<	500		1250	1620	µg/g	77.2	70	-	130	
1,2-dimethoxyethane	ND	<	50		161	186	µg/g	86.6	70	-	130	
Triethylamine	ND	<	500		1280	1600	µg/g	80.0	70	-	130	
N,N-dimethylformamide	ND	<	150		394	480	µg/g	82.1	70	-	130	
N,N-dimethylacetamide	ND	<	150		323	483	µg/g	66.9	70	-	130	Q6
Pyridine	ND	<	50		132	168	µg/g	78.6	70	-	130	
Sulfolane	ND	<	50		99.5	161	µg/g	61.8	70	-	130	Q6

QC- Sample Duplicate — Sample ID: 23-009822-0001

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A Tentamus Company

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Revision: 2 Document ID: 7087
Legacy ID: CFL-E33Effective:

Analyte	Result	Org. Result	LOQ	Units	RPD	Limits	Accept/ Fail	Notes
Propane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Isobutane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Butane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2,2-Dimethylpropane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Methanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethylene Oxide	35.8	36.5	30	µg/g	1.9	< 20	Acceptable	
2-Methylbutane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Pentane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethyl Ether	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2,2-Dimethylbutane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Acetone	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2-Propanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethyl Formate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Acetonitrile	ND	ND	100	µg/g	0.0	< 20	Acceptable	
Methyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
2,3-Dimethylbutane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Dichloromethane	ND	ND	60	µg/g	0.0	< 20	Acceptable	
2-Methylpentane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
MTBE	ND	ND	500	µg/g	0.0	< 20	Acceptable	
3-Methylpentane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Hexane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
1-Propanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Methylethylketone	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Ethyl acetate	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2-Butanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Tetrahydrofuran	ND	ND	100	µg/g	0.0	< 20	Acceptable	
Cyclohexane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2-methyl-1-propanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Benzene	ND	ND	1	µg/g	0.0	< 20	Acceptable	
Isopropyl Acetate	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Heptane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
1-Butanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Propyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
1,4-Dioxane	ND	ND	100	µg/g	0.0	< 20	Acceptable	
2-Ethoxyethanol	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Methylisobutylketone	ND	ND	500	µg/g	0.0	< 20	Acceptable	
3-Methyl-1-butanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Ethylene Glycol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Toluene	ND	ND	100	µg/g	0.0	< 20	Acceptable	
Isobutyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
1-Pentanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Butyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Ethylbenzene	ND	ND	200	µg/g	0.0	< 20	Acceptable	
m,p-Xylene	ND	ND	200	µg/g	0.0	< 20	Acceptable	
o-Xylene	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Cumene	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Anisole	ND	ND	500	µg/g	0.0	< 20	Acceptable	
DMSO	ND	ND	500	µg/g	0.0	< 20	Acceptable	
1,2-dimethoxyethane	ND	ND	50	µg/g	0.0	< 20	Acceptable	
Triethylamine	ND	ND	500	µg/g	0.0	< 20	Acceptable	
N,N-dimethylformamide	ND	ND	150	µg/g	0.0	< 20	Acceptable	
N,N-dimethylacetamide	ND	ND	150	µg/g	0.0	< 20	Acceptable	
Pyridine	ND	ND	50	µg/g	0.0	< 20	Acceptable	
Sulfolane	ND	ND	50	µg/g	0.0	< 20	Acceptable	

Abbreviations

ND - None Detected at or above MRL
RPD - Relative Percent Difference
LOQ - Limit of Quantitation

Units of Measure:

µg/g - Microgram per gram or ppm

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503-254-1794

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Revision: 2 Document ID: 7087
Legacy ID: CFL-E33Effective:

Laboratory Quality Control Results

Residual Solvents — Batch ID: 2310644

Method Blank					Laboratory Control Sample							
Analyte	Result		LOQ	Notes	Result	Spike	Units	%Rec	Limits			Notes
Propane	ND	<	200		541	584	µg/g	92.6	60	-	120	
Isobutane	ND	<	200		715	767	µg/g	93.2	60	-	120	
Butane	ND	<	200		743	782	µg/g	95.0	60	-	120	
2,2-Dimethylpropane	ND	<	200		913	939	µg/g	97.2	60	-	120	
Methanol	ND	<	200		1640	1670	µg/g	98.2	60	-	120	
Ethylene Oxide	ND	<	30		58.3	57.1	µg/g	102.1	60	-	120	
2-Methylbutane	ND	<	200		1520	1680	µg/g	90.5	60	-	120	
Pentane	ND	<	200		1530	1670	µg/g	91.6	60	-	120	
Ethanol	ND	<	200		1640	1660	µg/g	98.8	70	-	130	
Ethyl Ether	ND	<	200		1570	1670	µg/g	94.0	60	-	120	
2,2-Dimethylbutane	ND	<	30		174	189	µg/g	92.1	60	-	120	
Acetone	ND	<	200		1630	1670	µg/g	97.6	60	-	120	
2-Propanol	ND	<	200		1630	1630	µg/g	100.0	60	-	120	
Ethyl Formate	ND	<	500		1520	1600	µg/g	95.0	70	-	130	
Acetonitrile	ND	<	100		478	492	µg/g	97.2	60	-	120	
Methyl Acetate	ND	<	500		1640	1600	µg/g	102.5	70	-	130	
2,3-Dimethylbutane	ND	<	30		174	180	µg/g	96.7	60	-	120	
Dichloromethane	ND	<	60		477	488	µg/g	97.7	60	-	120	
2-Methylpentane	ND	<	30		170	182	µg/g	93.4	60	-	120	
MTBE	ND	<	500		1640	1610	µg/g	101.9	70	-	130	
3-Methylpentane	ND	<	30		166	177	µg/g	93.8	60	-	120	
Hexane	ND	<	30		170	177	µg/g	96.0	60	-	120	
1-Propanol	ND	<	500		1610	1600	µg/g	100.6	70	-	130	
Methylethylketone	ND	<	500		1650	1610	µg/g	102.5	70	-	130	
Ethyl acetate	ND	<	200		1610	1630	µg/g	98.8	60	-	120	
2-Butanol	ND	<	200		1650	1630	µg/g	101.2	60	-	120	
Tetrahydrofuran	ND	<	100		491	488	µg/g	100.6	60	-	120	
Cyclohexane	ND	<	200		1580	1610	µg/g	98.1	60	-	120	
2-methyl-1-propanol	ND	<	500		1620	1610	µg/g	100.6	70	-	130	
Benzene	ND	<	1		4.99	4.79	µg/g	104.2	60	-	120	
Isopropyl Acetate	ND	<	200		1680	1650	µg/g	101.8	60	-	120	
Heptane	ND	<	200		1630	1630	µg/g	100.0	60	-	120	
1-Butanol	ND	<	500		1540	1600	µg/g	96.3	70	-	130	
Propyl Acetate	ND	<	500		1630	1600	µg/g	101.9	70	-	130	
1,4-Dioxane	ND	<	100		506	523	µg/g	96.7	60	-	120	
2-Ethoxyethanol	ND	<	30		195	179	µg/g	108.9	60	-	120	
Methylisobutylketone	ND	<	500		1630	1600	µg/g	101.9	70	-	130	
3-Methyl-1-butanol	ND	<	500		1510	1600	µg/g	94.4	70	-	130	
Ethylene Glycol	ND	<	200		283	506	µg/g	55.9	60	-	120	Q6
Toluene	ND	<	100		521	496	µg/g	105.0	60	-	120	
Isobutyl Acetate	ND	<	500		1710	1610	µg/g	106.2	70	-	130	
1-Pentanol	ND	<	500		1480	1600	µg/g	92.5	70	-	130	
Butyl Acetate	ND	<	500		1650	1610	µg/g	102.5	70	-	130	
Ethylbenzene	ND	<	200		1000	978	µg/g	102.2	60	-	120	
m,p-Xylene	ND	<	200		1040	994	µg/g	104.6	60	-	120	
o-Xylene	ND	<	200		1010	982	µg/g	102.9	60	-	120	
Cumene	ND	<	30		151	171	µg/g	88.3	60	-	120	
Anisole	ND	<	500		1670	1600	µg/g	104.4	70	-	130	
DMSO	ND	<	500		1730	1620	µg/g	106.8	70	-	130	
1,2-dimethoxyethane	ND	<	50		184	186	µg/g	98.9	70	-	130	
Triethylamine	ND	<	500		1550	1600	µg/g	96.9	70	-	130	
N,N-dimethylformamide	ND	<	150		533	480	µg/g	111.0	70	-	130	
N,N-dimethylacetamide	ND	<	150		481	483	µg/g	99.6	70	-	130	
Pyridine	ND	<	50		172	168	µg/g	102.4	70	-	130	
Sulfolane	ND	<	50		139	161	µg/g	86.3	70	-	130	
1,2-Dichloroethane	ND	<	1		1.06	1	µg/g	106.0	70	-	130	
Chloroform	ND	<	1		1.05	1	µg/g	105.0	70	-	130	
Trichloroethylene	ND	<	1		1.02	1	µg/g	102.0	70	-	130	
1,1-Dichloroethane	ND	<	1		1.02	1	µg/g	102.0	70	-	130	

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ORELAP#: OR100028
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Received: 08/30/23 15:01

Revision: 2 Document ID: 7087
Legacy ID: CFL-E33Effective:

QC- Sample Duplicate — Sample ID: 23-010144-0001

Analyte	Result	Org. Result	LOQ	Units	RPD	Limits	Accept/ Fail	Notes
Propane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Isobutane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Butane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2,2-Dimethylpropane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Methanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethylene Oxide	ND	ND	30	µg/g	0.0	< 20	Acceptable	
2-Methylbutane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Pentane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethyl Ether	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2,2-Dimethylbutane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Acetone	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2-Propanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Ethyl Formate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Acetonitrile	ND	ND	100	µg/g	0.0	< 20	Acceptable	
Methyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
2,3-Dimethylbutane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Dichloromethane	ND	ND	60	µg/g	0.0	< 20	Acceptable	
2-Methylpentane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
MTBE	ND	ND	500	µg/g	0.0	< 20	Acceptable	
3-Methylpentane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Hexane	ND	ND	30	µg/g	0.0	< 20	Acceptable	
1-Propanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Methylethylketone	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Ethyl acetate	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2-Butanol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Tetrahydrofuran	ND	ND	100	µg/g	0.0	< 20	Acceptable	
Cyclohexane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
2-methyl-1-propanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Benzene	ND	ND	1	µg/g	0.0	< 20	Acceptable	
Isopropyl Acetate	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Heptane	ND	ND	200	µg/g	0.0	< 20	Acceptable	
1-Butanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Propyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
1,4-Dioxane	ND	ND	100	µg/g	0.0	< 20	Acceptable	
2-Ethoxyethanol	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Methylisobutylketone	ND	ND	500	µg/g	0.0	< 20	Acceptable	
3-Methyl-1-butanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Ethylene Glycol	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Toluene	ND	ND	100	µg/g	0.0	< 20	Acceptable	
Isobutyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
1-Pentanol	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Butyl Acetate	ND	ND	500	µg/g	0.0	< 20	Acceptable	
Ethylbenzene	ND	ND	200	µg/g	0.0	< 20	Acceptable	
m,p-Xylene	ND	ND	200	µg/g	0.0	< 20	Acceptable	
o-Xylene	ND	ND	200	µg/g	0.0	< 20	Acceptable	
Cumene	ND	ND	30	µg/g	0.0	< 20	Acceptable	
Anisole	ND	ND	500	µg/g	0.0	< 20	Acceptable	
DMSO	ND	ND	500	µg/g	0.0	< 20	Acceptable	
1,2-dimethoxyethane	ND	ND	50	µg/g	0.0	< 20	Acceptable	
Triethylamine	ND	ND	500	µg/g	0.0	< 20	Acceptable	
N,N-dimethylformamide	ND	ND	150	µg/g	0.0	< 20	Acceptable	
N,N-dimethylacetamide	ND	ND	150	µg/g	0.0	< 20	Acceptable	
Pyridine	ND	ND	50	µg/g	0.0	< 20	Acceptable	
Sulfolane	ND	ND	50	µg/g	0.0	< 20	Acceptable	
1,2-Dichloroethane	ND	ND	1	µg/g	0.0	< 20	Acceptable	
Chloroform	ND	ND	1	µg/g	0.0	< 20	Acceptable	
Trichloroethylene	ND	ND	1	µg/g	0.0	< 20	Acceptable	
1,1-Dichloroethane	ND	ND	1	µg/g	0.0	< 20	Acceptable	

Abbreviations

ND- None Detected at or above MRL
RPD- Relative Percent Difference
LOQ- Limit of Quantitation
Q6- Quality control outside QClimits. Data acceptable based on remaining QC.

Units of Measure:

µg/g- Microgram per gram or ppm

Columbia LABORATORIES
A Tentamus Company

12423 NE Whitaker Way
Portland, OR 97230
503-254-1794

Report Number:	23-010339/D003.R000
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Explanation of QC Flag Comments:

Code	Explanation
Q	Matrix interferences affecting spike or surrogate recoveries.
Q1	Quality control result biased high. Only non-detect samples reported.
Q2	Quality control outside QC limits. Data considered estimate.
Q3	Sample concentration greater than four times the amount spiked.
Q4	Non-homogenous sample matrix, affecting RPD result and/or % recoveries.
Q5	Spike results above calibration curve.
Q6	Quality control outside QC limits. Data acceptable based on remaining QC.
R	Relative percent difference (RPD) outside control limit.
R1	RPD non-calculable, as sample or duplicate results are less than five times the LOQ.
R2	Sample replicates RPD non-calculable, as only one replicate is within the analytical range.
LOQ1	Quantitation level raised due to low sample volume and/or dilution.
LOQ2	Quantitaion level raised due to matrix interference.
B	Analyte detected in method blank, but not in associated samples.
B1	The sample concentration is greater than 5 times the blank concentration.
B2	The sample concentration is less than 5 times the blank concentration.