

# CERTIFICATE OF ANALYSIS

PREPARED FOR:



RELIV INTERNATIONAL, INC.  
136 CHESTERFIELD INDUSTRIAL BLVD.  
CHESTERFIELD, MO 63005

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**TEST BATCH ID: RLV-FS500.SLEEP.019**

Including Lot:

**20LL085K11**

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## RELIV RLV 500mg FULL SPECTRUM SLEEP TINCTURE

<b>Batch ID:</b>	RLV-FS500.SLEEP.019	<b>Certificate ID:</b>	050120SR009
<b>Received:</b>	27-Apr-2020	<b>Test Type:</b>	Potency
<b>Test Date:</b>	28-Apr -2020	<b>Method:</b>	Tested in accordance of the requirements of ISO/IEC 17025:2005/2017
<b>Matrix:</b>	Concentrates/Extracts		

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Test Sample

The data presented in this report has been reviewed in an accredited laboratory. I attest that the information herein has been checked for accuracy and against quality control requirements for each test method used. These results pertain only to the test materials listed in this report. This report may not be reproduced except in its complete entirety.

Dan Krist

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**T1: CANNABINOID PROFILE & POTENCY**

The tested sample was analyzed (using Liquid Chromatography-Mass Spectrometry, LC-MS) for plant-based cannabinoids. All collected data was compared to laboratory certified reference standards at known concentrations.

ID	Weight %	Conc. mg/mL	ID	Weight %	Conc. mg/mL
D9-THC	0.046	0.457	CBN	N/D	N/D
THCV	N/D	N/D	THCA	N/D	N/D
CBD	1.952	19.515	CBDA	N/D	N/D
CBDV	N/D	N/D	CBGA	N/D	N/D
CBG	0.019	0.192	D8-THC	N/D	N/D
CBC	0.072	0.724	exo-THC	N/D	N/D
Max THC and Max CBD are calculated values for total cannabinoids assuming complete decarboxylation of the acid to the neutral form. Calculation is based on the weight loss of the acid group during decarboxylation. THC Minimum Detectable Limit = 0.001 ng/mL N/D = Not detected above the limits of detection (LLD) trace = <0.15 mg/mL			<b>TOTAL:</b> 2.089 20.888 mg/mL <b>Max THC:</b> 0.046 0.457 mg/mL <b>Max CBD:</b> 1.951 19.515 mg/mL		

**SUMMARY: Active Diols**

using Ultra Performance Liquid Chromatography (UPLC)

	Potency	Results per 30mL	Status
CBD	19.515 mg/serving	585.45 mg	PASS
CBG	0.192 mg/serving	5.76 mg	PASS
CBC	0.724 mg/serving	21.72 mg	PASS
D-9 THC	0.457 mg/serving	13.71 mg	PASS

**T2: TERPENE PROFILE**

The tested sample was analyzed (using Head Space Gas Chromatography, HS-GC) for plant-based terpenoids. All collected data was compared to laboratory certified reference standards at known concentrations.

ID	Weight %	Conc. mg/mL	ID	Weight %	Conc. mg/mL
$\beta$ -Caryophyllene	0.652	6.522	Linalool	0.031	0.311
Geraniol	0.005	0.051	Myrcene	0.041	0.412
Humulene	0.044	0.443	Terpinolene	0.022	0.224
Limonene	0.031	0.314	<b>TOTAL WT %:</b>	<b>0.826 %</b>	

Tested for but not present or B/LOQ:

$\alpha$ -Bisabolol, 3-Carene, Caryophyllene-trans, p-Cymene, Eucalyptol, Guaiol, Isopulegol, cis-Nerolidol, trans-Nerolidol,  $\alpha$ -Pinene,  $\beta$ -Pinene,  $\alpha$ -Terpinene,  $\gamma$ -Terpinene

**T3: RESIDUAL SOLVENTS**

using Headspace Gas Chromatography with Mass Spectrometry (GC/MS)

Solvent	Limits	Result	Status	Solvent	Limits	Result	Status
Acetone	5,000 ppm	N/D	PASS	Isopropyl Alcohol	5,000 ppm	N/D	PASS
Acetonitrile	410 ppm	N/D	PASS	Methanol	3,000 ppm	N/D	PASS
Benzene	1 ppm	N/D	PASS	N-Heptane	5,000 ppm	N/D	PASS
Butane	5,000 ppm	N/D	PASS	N-Hexane	290 ppm	N/D	PASS
Chloroform	1 ppm	N/D	PASS	Pentane	5,000 ppm	N/D	PASS
Dichloroethane	1 ppm	N/D	PASS	Propane	5,000 ppm	N/D	PASS
Dichloromethane	1 ppm	N/D	PASS	Toluene	890 ppm	N/D	PASS
Ethanol	5,000 ppm	N/D	PASS	Trichloroethene	1 ppm	N/D	PASS
Ethyl Acetate	5,000 ppm	N/D	PASS	Xylenes	2,170 ppm	N/D	PASS
Ethyl Ether	5,000 ppm	N/D	PASS				

N/D = Not Detected

**T4: MICROBIOLOGICAL/PATHOGENIC CONTAMINANTS<sup>1</sup>**

using Polymerase Chain Reaction (PCR)

Contaminant	Limits	Result	Status
Total Aerobic Bacterial Count	10,000 CFU/g	Conforms	PASS
Total Coliform Bacterial Count	100 CFU/g	Conforms	PASS
Total Yeast & Mold	1,000 CFU/g	Conforms	PASS
Enterobacteriaceae	100 CFU/g	Conforms	PASS
E. Coli (O157)	Present	N/D	PASS
Salmonella	Present	N/D	PASS

**T5: MYCOTOXIN ANALYSIS<sup>1</sup>**

using Liquid Chromatography with Mass Spectrometry (LC/MS)

Contaminant	Limits	Result	Status
Aflatoxin B1	20 ppb	N/D	PASS
Aflatoxin B2	20 ppb	N/D	PASS
Aflatoxin G1	20 ppb	N/D	PASS
Aflatoxin G2	20 ppb	N/D	PASS
Ochratoxin A	20 ppb	N/D	PASS

<sup>1</sup> Contaminant detection conducted in accordance with AOAC – OMA #2014.05, USP 2021, and USP 2022

**T6: HEAVY METAL ANALYSIS**

using Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

Arsenic	200 ppb	Conforms	PASS
Cadmium	200 ppb	Conforms	PASS
Lead	100 ppb	Conforms	PASS
Mercury	500 ppb	Conforms	PASS

**T7: PESTICIDE ANALYSIS**

using Liquid Chromatography with Mass Spectrometry (LC/MS)

Pesticide	Limits	Result	Status
Abamectin B1a	0.100 ppm	N/D	PASS
Abamectin B1b	0.100 ppm	N/D	PASS
Acephate	0.100 ppm	N/D	PASS
Acequinocyl	0.100 ppm	N/D	PASS
Aldicarb	0.100 ppm	N/D	PASS
Azoxystrobin	0.100 ppm	N/D	PASS
Bifenazate	0.100 ppm	N/D	PASS
Bifenthrin	3.000 ppm	N/D	PASS
Boscalid	0.100 ppm	N/D	PASS
Carbaryl	0.500 ppm	N/D	PASS
Carbofuran	0.100 ppm	N/D	PASS
Chlorantraniliprole	10.00 ppm	N/D	PASS
Chlorpyrifos	0.100 ppm	N/D	PASS
Cyfluthrin	0.100 ppm	N/D	PASS
Daminozide	0.100 ppm	N/D	PASS
Diazinon	0.100 ppm	N/D	PASS
Dichlorvos	0.100 ppm	N/D	PASS
Dimethoate	0.100 ppm	N/D	PASS
Dimethomorph	2.000 ppm	N/D	PASS
Ethoprophos	0.100 ppm	N/D	PASS
Etofenprox	0.100 ppm	N/D	PASS
Etoxazole	0.100 ppm	N/D	PASS
Fenhexamid	0.100 ppm	N/D	PASS
Fenoxycarb	0.100 ppm	N/D	PASS
Fenpyroximate	0.100 ppm	N/D	PASS
Fipronil	0.100 ppm	N/D	PASS
Flonicamid	0.100 ppm	N/D	PASS
Fludioxonil	0.100 ppm	N/D	PASS
Hexythiazox	0.100 ppm	N/D	PASS

N/D = Not Detected

Pesticide	Limits	Result	Status
Imazalil	0.100 ppm	N/D	PASS
Imidacloprid	5.000 ppm	N/D	PASS
Kresoxim-methyl	0.100 ppm	N/D	PASS
Malathion	0.500 ppm	N/D	PASS
Metalaxyl	2.000 ppm	N/D	PASS
Methiocarb	0.100 ppm	N/D	PASS
Methomyl	1.000 ppm	N/D	PASS
Mevinphos	0.100 ppm	N/D	PASS
Myclobutanil	0.100 ppm	N/D	PASS
Naled	0.100 ppm	N/D	PASS
Oxamyl	0.500 ppm	N/D	PASS
Paclbutrazol	0.100 ppm	N/D	PASS
Permethrins	0.500 ppm	N/D	PASS
Phosmet	0.100 ppm	N/D	PASS
Piperonyl Butoxide	3.000 ppm	N/D	PASS
Prallethrin	0.100 ppm	N/D	PASS
Propiconazole	0.100 ppm	N/D	PASS
Propoxur	0.100 ppm	N/D	PASS
Pyrethrins	0.500 ppm	N/D	PASS
Pyridaben	0.100 ppm	N/D	PASS
Spinetoram	0.100 ppm	N/D	PASS
Spinosad	0.100 ppm	N/D	PASS
Spiromesifen	0.100 ppm	N/D	PASS
Spirotetramat	0.100 ppm	N/D	PASS
Spiroxamine	0.100 ppm	N/D	PASS
Tebuconazole	0.100 ppm	N/D	PASS
Thiachloprid	0.100 ppm	N/D	PASS
Thiamethoxam	5.000 ppm	N/D	PASS
Trifloxystrobin	0.100 ppm	N/D	PASS

**T8: WATER ACTIVITY ANALYSIS**

using HD-3A Water Activity Meter (Measuring Range: 0.00aw – 0.98aw, no condensing)

Water	0.56	Conforms	PASS
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**T9: FILTH AND FOREIGN MATERIALS ANALYSIS**

using Microscope

No Filth Detected		Conforms	PASS
No Foreign Materials Detected		Conforms	PASS

**-END OF REPORT-**