Protonify
Better Everyday

Objective: Confirm long-term shelf stability of Protonify THCa isolate material for one year at room temperature

- On 18 November 2021, THCa isolate (purity 98.521%, total cannabinoids 99.473% - see COA page 4) was placed into multiple one gram jars and stored for approximately one year at 25 degrees Centigrade dry storage containment to test shelf stability.
- On 26 October 2022, the same five one gram samples were re-tested for THCa, THC and total cannabinoid purity (COAs on pages 5-10).
- Mean variance between 18 Nov 21 and 26 Oct 22 in THCa purity ~1.25%, THC purity 1% and total cannabinoids <1%.

Purpose: Report on stability of THCa material stored for 1 year under 25 C dry storage containment.

Summary

Sample Degradation	Base line	#1	#2	#3	B-#1	B-#2	B-#3	Mean	SD
THCa	0	0.63%	0.36%	1.80%	1.80%	0.74%	2.44%	1.29%	0.0083
Total THC	0	0.64%	1.26%	1.31%	1.31%	0.41%	2.02%	1.16%	0.0057
Total Cannabinoid	0	0.09%	0.85%	1.31%	1.24%	0.43%	1.24%	0.86%	0.0050

Conclusion
Protonify THCa material packaged and stored in a dry cool place is stable and fit for distribution and utilization of manufacturing Adult and Medical Use Cannabis Packaged Goods.

Packaging and Labeling Samples: 1 gram jars of THCa isolate where packaged, labeled and stored for 1 year under 25 C dry storage conditions. Lot PR-0009-10142021 was divided into two lots PR-0009-10142021 & PR-0009-10142021-B.



Testing Methodology:

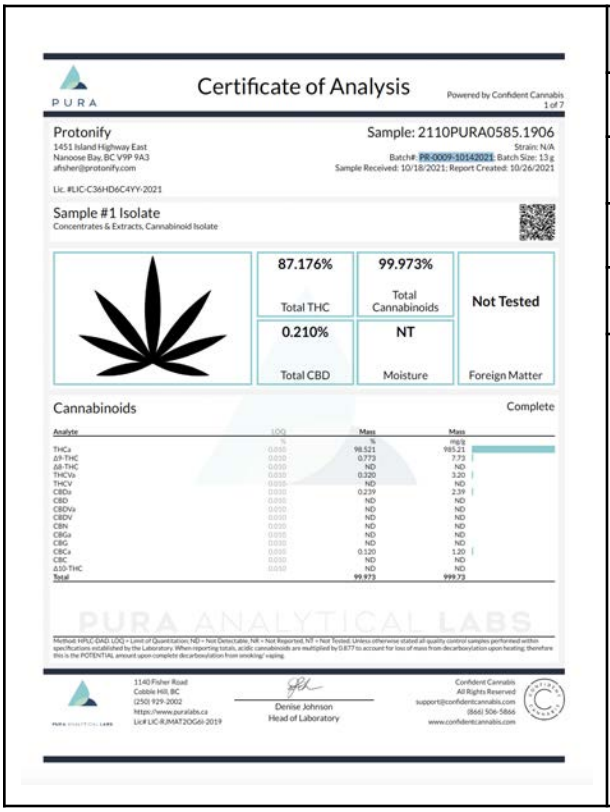
1. Prepare three separate replicates of the same sample, labeled R1, R2, R3 etc.
2. Weigh 100 to 200 mg of sample into a tube and record the weight to 4 decimal places.Zero the tube and contents on the scale. Add 15 ml of methanol, and record the methanol weight.
3. Cap the samples and shake/ vortex until the sample is completely dissolved.
4. Pipette a 1 ml aliquot of each sample into a 2 ml microcentrifuge tube and centrifuge at 1500 rpm for 5 minutes at room temperature.
5. Pipette a 20 microlitre aliquot of the supernatant into 1490 microlitres of 80:20 methanol water into labeled autosampler vials and cap.
6. Vortex for 10 seconds.
7. The samples are now ready for injection into the HPLC.

HPLC Conditions:
Mobile Phase:
A: LC grade water + 0.1% Formic Acid + 8mM Ammonium Formate
B: LC grade Acetonitrile + 0.1% Formic Acid
Pump Program:
Runtime: 8 min
Flow Rate: 1 ml/min, Isocratic

Injection Vol: 10 microlitres
Column Oven Temp: 40 C
Autosampler Temp: 20 C
PDA (photo-diode array) Detector Wavelength: 228nm, Bandwidth 5 nm, Reference 380 nm, Reference Bandwidth 5 nm
Column: C18, 150 x 3.0 mm; 2.6 µm

Calculations:
Mass % Cannabinoid in Sample = C(µg/mL) x DF x Multiplier (g)
Sample Weight (g) x (Density of Solvent x 10000)
Where C = Concentration determined from the calibration curve in µg/mL
DF = dilution factor (in this case 75)
Multiplier = weight of extraction solvent (methanol)
Density of Methanol x 10000 = 7920 g/ml
Target Results of replicates +/- 3% RSD (residual standard deviation).

Supporting Data Set
Lot ID: PR-0009-10142021
Date Tested: Nov 18, 2021



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Protonify
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Lic. #LIC-C36HD6C4YY-2021

Sample: 2110PURA0585.1906
Strain: N/A
Batch# PR-0009-10142021; Batch Size: 13 g;
Sample Received: 10/18/2021; Report Created: 10/26/2021

Sample #1 Isolate
Concentrates & Extracts, Cannabinoid Isolate

87.176%	99.973%	Not Tested
Total THC	Total Cannabinoids	Foreign Matter
0.210%	NT	
Total CBD	Moisture	

Cannabinoids — Complete

Analyte	LOQ	Mass %	Mass mg/g
THCa	0.010	98.521	985.21
Δ9-THC	0.010	0.773	7.73
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.320	3.20
THCV	0.010	ND	ND
CBDa	0.010	0.239	2.39
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	0.120	1.20
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		99.973	999.73

PURA ANALYTICAL LABS

Method: HPLC-DAD. LOQ = Limit of Quantitation; ND = Not Detectable, NR = Not Reported, NT = Not Tested. Unless otherwise stated all quality control samples performed within specifications established by the Laboratory. When reporting totals, acidic cannabinoids are multiplied by 0.877 to account for loss of mass from decarboxylation upon heating, therefore this is the POTENTIAL amount upon complete decarboxylation from smoking/ vaping.

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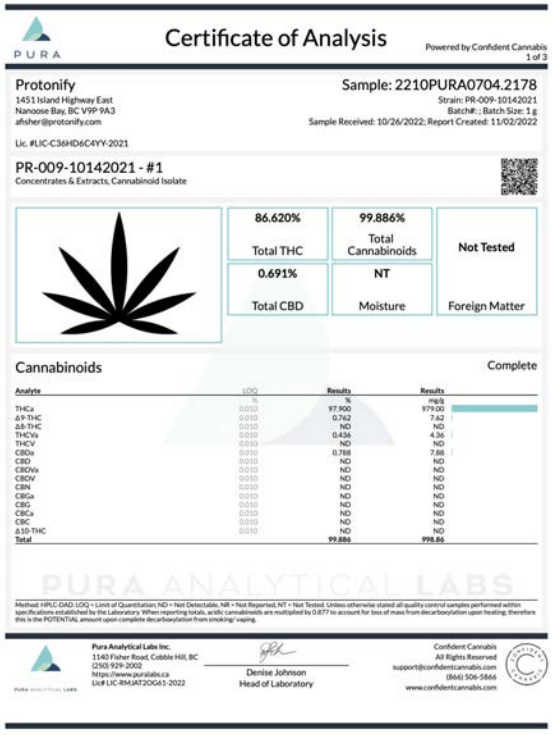
Cannabinoid	%
THCa	98.521%
D9-THC	0.773%
Total THC[1]	87.176%
Total Cannabinoids	99.973%

[1] Health Canada reports Total THC = .877 * THCa + D9 THC (does **NOT** include D8 or THCV)

Lot ID: PR-0009-10142021 - #1
Date Tested: Oct 26, 2022



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Lic. #LIC-C36HD6C4YY-2021

Sample: 2210PURA0704.2178
Strain: PR-009-10142021
Batch#: ; Batch Size: 1 g
Sample Received: 10/26/2022; Report Created: 11/02/2022

PR-009-10142021 - #1
Concentrates & Extracts, Cannabinoid Isolate

86.620% Total THC	99.886% Total Cannabinoids	Not Tested
0.691% Total CBD	NT Moisture	Foreign Matter

Cannabinoids — Complete

Analyte	LOQ %	Results %	Results mg/g
THCa	0.010	97.900	979.00
Δ9-THC	0.010	0.762	7.62
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.436	4.36
THCV	0.010	ND	ND
CBDa	0.010	0.788	7.88
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	ND	ND
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		99.886	998.86

PURA ANALYTICAL LABS

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Cannabinoid	
THCa	97.900%
D9-THC	0.762%
Total THC	86.620%
Total Cannabinoids	99.886%

Variance from baseline

THCa
98.521 - 97.900 = 0.621 (0.63%)

Total THC
87.176 - 86.62 = 0.556 (0.64%)

Total Cannabinoids
99.973 - 99.886 = 0.087 (0.09%)

Lot ID: PR-0009-10142021 - #2
Date Tested: Oct 26, 2022

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Lic. #LIC-C36HD6C4YY-2021

Sample: 2210PURA0704.2179
Strain: PR-009-10142021
Batch#: ; Batch Size: 1 g
Sample Received: 10/26/2022; Report Created: 11/02/2022

PR-009-10142021 - #2
Concentrates & Extracts, Cannabinoid Isolate

86.092% Total THC	99.129% Total Cannabinoids	Not Tested
0.517% Total CBD	NT Moisture	Foreign Matter

Cannabinoids — Complete

Analyte	LOQ %	Results %	Results mg/g
THCa	0.010	98.167	981.67
Δ9-THC	0.010	ND	ND
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.373	3.73
THCV	0.010	ND	ND
CBDa	0.010	0.589	5.89
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	ND	ND
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		99.129	991.29

PURA ANALYTICAL LABS

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Cannabinoid	
THCa	98.167%
D9-THC	ND
Total THC	86.092%
Total Cannabinoids	99.129%

Variance from baseline

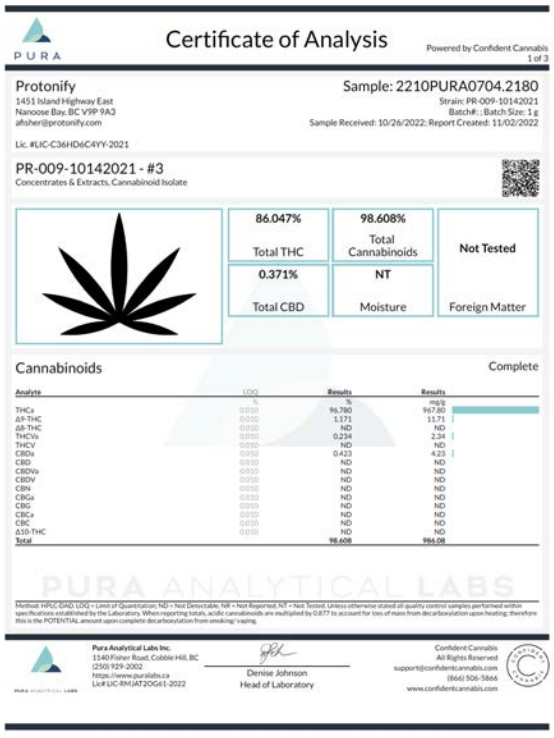
THCa
98.521 - 98.167 = 0.354 (0.04%)

Total THC
87.176 - 86.092 = 0.556 (1.84%)

Total Cannabinoids
99.973 - 99.129 = 0.844 (0.85%)

Note: presence of other minors not reported as D9 THC.

Lot ID: PR-0009-10142021 - #3
Date Tested: Oct 26, 2022



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Lic. #LIC-C36HD6C4YY-2021

Sample: 2210PURA0704.2180
Strain: PR-009-10142021
Batch# : ; Batch Size: 1 g
Sample Received: 10/26/2022; Report Created: 11/02/2022

PR-009-10142021 - #3
Concentrates & Extracts, Cannabinoid Isolate

86.047% Total THC	98.608% Total Cannabinoids	Not Tested
0.371% Total CBD	NT Moisture	Foreign Matter

Cannabinoids — Complete

Analyte	LOQ %	Results %	Results mg/g
THCa	0.010	96.780	967.80
Δ9-THC	0.010	1.171	11.71
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.234	2.34
THCV	0.010	ND	ND
CBDa	0.010	0.423	4.23
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	ND	ND
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		98.608	986.08

PURA ANALYTICAL LABS

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Cannabinoid	
THCa	96.780%
D9-THC	1.171%
Total THC	86.047%
Total Cannabinoids	98.680%

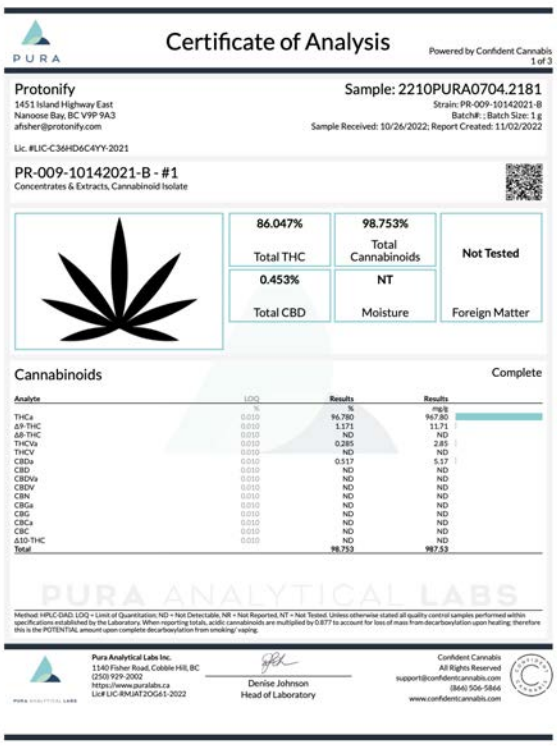
Variance from baseline

THCa
98.521 - 96.780 = 1.741 (1.80%)

Total THC
87.176 - 86.047 = 1.129 (1.31%)

Total Cannabinoids
99.973 - 98.680 = 1.293 (1.31%)

Lot ID: PR-0009-10142021-B - #1
Date Tested: Oct 26, 2022



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Lic. #LIC-C36HD6C4YY-2021

Sample: 2210PURA0704.2181
Strain: PR-009-10142021-B
Batch# : Batch Size: 1 g
Sample Received: 10/26/2022; Report Created: 11/02/2022

PR-009-10142021-B - #1
Concentrates & Extracts, Cannabinoid Isolate

86.047% Total THC	98.753% Total Cannabinoids	Not Tested
0.453% Total CBD	NT Moisture	Foreign Matter

Cannabinoids — Complete

Analyte	LOQ	Results	Results
	%	%	mg/g
THCa	0.010	96.780	967.80
Δ9-THC	0.010	1.171	11.71
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.285	2.85
THCV	0.010	ND	ND
CBDa	0.010	0.517	5.17
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	ND	ND
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		98.753	987.53

PURA ANALYTICAL LABS

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Cannabinoid	
THCa	96.780%
D9-THC	1.171%
Total THC	86.047%
Total Cannabinoids	98.753%

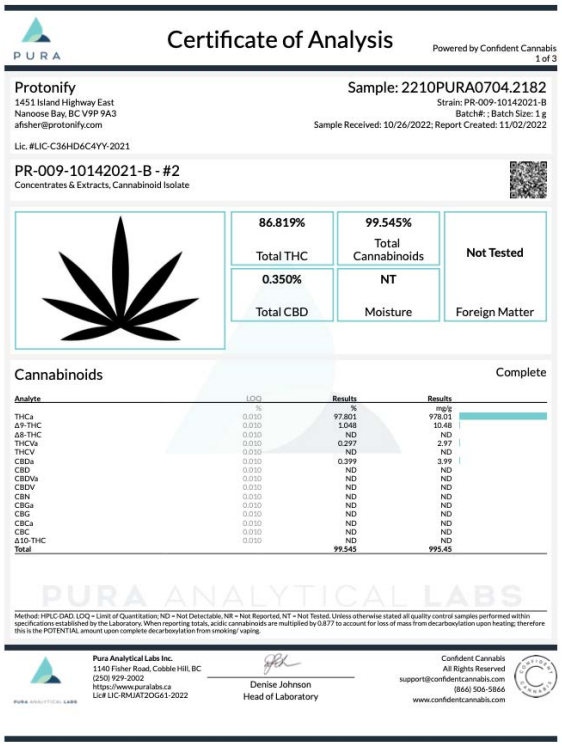
Variance from baseline

THCa
98.521 - 96.780 = 1.741 (1.80%)

Total THC
87.176 - 86.047 = 1.129 (1.31%)

Total Cannabinoids
99.973 - 98.753 = 1.22 (1.24%)

Lot ID: PR-0009-10142021-B - #2
Date Tested: Oct 26, 2022



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Lic. #LIC-C36HD6C4YY-2021

Sample: 2210PURA0704.2182
Strain: PR-009-10142021-B
Batch#: ; Batch Size: 1 g
Sample Received: 10/26/2022; Report Created: 11/02/2022

PR-009-10142021-B - #2
Concentrates & Extracts, Cannabinoid Isolate

86.819% Total THC	99.545% Total Cannabinoids	Not Tested
0.350% Total CBD	NT Moisture	Foreign Matter

Cannabinoids — Complete

Analyte	LOQ	Results %	Results mg/g
THCa	0.010	97.801	978.01
Δ9-THC	0.010	1.048	10.48
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.297	2.97
THCV	0.010	ND	ND
CBDa	0.010	0.399	3.99
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	ND	ND
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		99.545	995.45

PURA ANALYTICAL LABS

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Cannabinoid	
THCa	97.801%
D9-THC	1.048%
Total THC	86.819%
Total Cannabinoids	99.545%

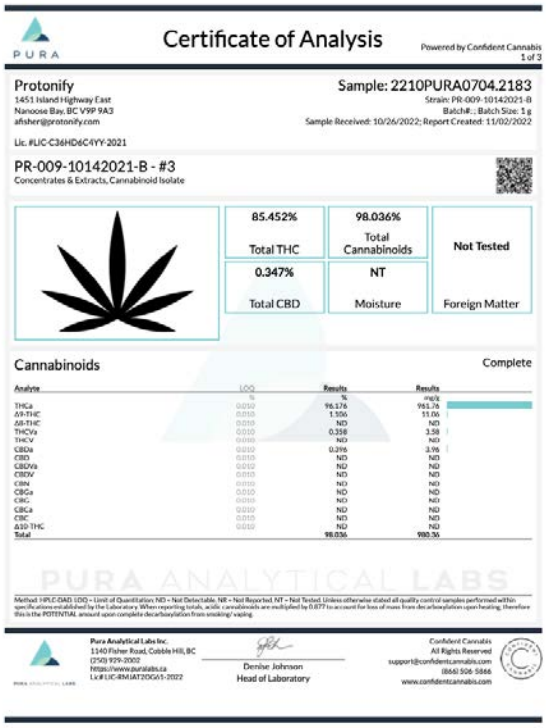
Variance from baseline

THCa
98.521 - 97.801 = 0.720 (0.74%)

Total THC
87.176 - 86.819 = 0.357 (0.41%)

Total Cannabinoids
99.973 - 99.545 = 0.428 (0.43%)

Lot ID: PR-0009-10142021-B - #3
Date Tested: Oct 26, 2022



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Lic. #LIC-C36HD6C4YY-2021

Sample: 2210PURA0704.2183
Strain: PR-009-10142021-B
Batch#: ; Batch Size: 1 g
Sample Received: 10/26/2022; Report Created: 11/02/2022

PR-009-10142021-B - #3
Concentrates & Extracts, Cannabinoid Isolate

85.452% Total THC	98.036% Total Cannabinoids	Not Tested	
0.347% Total CBD	NT Moisture	Foreign Matter	

Cannabinoids — Complete

Analyte	LOQ	Results %	Results mg/g
THCa	0.010	96.176	961.76
Δ9-THC	0.010	1.106	11.06
Δ8-THC	0.010	ND	ND
THCVa	0.010	0.358	3.58
THCV	0.010	ND	ND
CBDa	0.010	0.396	3.96
CBD	0.010	ND	ND
CBDVa	0.010	ND	ND
CBDV	0.010	ND	ND
CBN	0.010	ND	ND
CBGa	0.010	ND	ND
CBG	0.010	ND	ND
CBCa	0.010	ND	ND
CBC	0.010	ND	ND
Δ10-THC	0.010	ND	ND
Total		98.036	980.36

PURA ANALYTICAL LABS

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Cannabinoid	
THCa	96.176%
D9-THC	1.106%
Total THC	85.452%
Total Cannabinoids	98.036%

Variance from baseline

THCa
98.521 - 97.801 = 0.720 (0.74%)

Total THC
87.176 - 85.452 = 1.724 (2.02%)

Total Cannabinoids
99.973 - 98.753 = 1.22 (1.24%)

Protonify Corporation is a privately-held Canadian licensed global B2B manufacturer of highest-purity, CPG-grade cannabinoid isolates. Protonify's botanically-sourced cannabinoids are non-synthetic with purity approaching 100%. Available in several formats, including dry powder and nano-encapsulated, they fit seamlessly into traditional CPG formulation recipes, industrial scale production lines and supply chains and are the perfect foundation to enable cannabis product formulators and manufacturers to safely and reliably build brand affinity for consumer packaged goods containing THC and THCa. Manufacturing of Protonify ingredients strictly follow Good Manufacturing Practices (GMP) for extracted products, aligning with existing GMP / ISO / HACCP standards and are the foundation for the next generation of Cannabis 3.0 high purity products including Infused pre-rolls, beverages, vapes, edibles, sublingual strips and tablets.

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