

Certificate of Analysis

Stacker2 Europe BV

Geerweg 2
Sittard 6135KC Netherlands

Sample Name:	RUSH V4	Covance Sample:	8895471
Project ID	STACKER2-20191011-0003	Receipt Date	09-Oct-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Lot Number	F93114	Login Date	09-Oct-2019
Sample Serving Size		Online Order	20

Analysis
Result
Water Soluble Vitamins by LC-MS/MS

Pyridoxine 19991 mcg/100g

Yohimbe *

Yohimbine <100 ppm

Elements by ICP Mass Spectrometry

Cadmium <1.00 mcg/100g

Lead 1.53 mcg/100g

Mercury 1.31 mcg/100g

Screening Method for the Detection of Adulterants in Weight Loss Supplements *

1-Phenylethylamine <10000 mcg/100g

2-Methylamino-1-phenylbutane <200 mcg/100g

2-Phenylethylamine <10000 mcg/100g

Aegeline <2000 mcg/100g

Amphetamine <100 mcg/100g

Benfluorex <1000 mcg/100g

Benzphetamine <100 mcg/100g

Benzyl Sibutramine <100 mcg/100g

Bisacodyl <100 mcg/100g

Bumetanide <1000 mcg/100g

Bupropion <100 mcg/100g

Cetilistat <10000 mcg/100g

Chloro-Sibutramine <200 mcg/100g

Dapoxetine <1000 mcg/100g

Diclofenac <1000 mcg/100g

Diethylpropion (Amfepramone) <100 mcg/100g

Emodin <500 mcg/100g

Ephedrine <100 mcg/100g

Ephedrine, methylpseudo- <100 mcg/100g

Ephedrine, methyl- <100 mcg/100g

Ephedrine, nor- <100 mcg/100g

Ephedrine, norpseudo- <100 mcg/100g

Ephedrine, pseudo- <100 mcg/100g

Fenfluramine <100 mcg/100g

Fenproporex <100 mcg/100g

Fluoxetine <1000 mcg/100g

Furosemide <10000 mcg/100g

Glybenclamide <1000 mcg/100g

Homosibutramine <200 mcg/100g

* This analysis is not ISO accredited.

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 Sittard 6135KC Netherlands

Sample Name:	RUSH V4	Covance Sample:	8895471
Project ID	STACKER2-2728543-2	Receipt Date	09-Oct-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Lot Number	F93114	Login Date	09-Oct-2019
Sample Serving Size		Online Order	20

Analysis
Result
Screening Method for the Detection of Adulterants in Weight Loss Supplements *

Hordenine	<500 mcg/100g
Lorcaserin	<1000 mcg/100g
Metformin	<1000 mcg/100g
Methylphenethylamine, beta	<100 mcg/100g
N,N-Dimethylphenylethylamine	<100 mcg/100g
N-Desmethyl sertraline	<1000 mcg/100g
N-Desmethyl sibutramine	<100 mcg/100g
N-Didesmethyl sibutramine	<200 mcg/100g
N,alpha-Diethylphenethylamine	<100 mcg/100g
N-Formyl N,N-Didesmethyl Sibutramine	<200 mcg/100g
NIDA-41020	<200 mcg/100g
N-Methyltryptamine	<200 mcg/100g
N-Methyltyramine	<100 mcg/100g
Octopamine	<100000 mcg/100g
Orlistat	<1000 mcg/100g
Paroxetine	<200 mcg/100g
Phendimetrazine	<100 mcg/100g
Phenolphthalein	<1000 mcg/100g
Phentermine	<200 mcg/100g
Phenytoin	<10000 mcg/100g
Picamilon	<1000 mcg/100g
Propranolol	<500 mcg/100g
Rimonabant	<200 mcg/100g
Sertraline	<100 mcg/100g
Sibutramine	<100 mcg/100g
Synephrine	<1000 mcg/100g
Theobromine	<2000 mcg/100g
Theophylline	<2000 mcg/100g
Topiramate	<2000 mcg/100g
Tyramine	<2000 mcg/100g

Polycyclic Aromatic Hydrocarbons-Low Level

Benz(a)anthracene	0.0315 mcg/100g
Benzo(a)pyrene	<0.0250 mcg/100g
Benzo(b)fluoranthene	<0.0250 mcg/100g
Benzo(g,h,i)perylene	0.0412 mcg/100g
Benzo(k)fluoranthene	<0.0250 mcg/100g
Chrysene	0.0550 mcg/100g
Dibenz(a,h)anthracene	<0.0250 mcg/100g

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Lot Number	F93114	Login Date	09-Oct-2019
Sample Serving Size		Online Order	20

Analysis	Result
Polycyclic Aromatic Hydrocarbons-Low Level	
Indeno(1,2,3-c,d)pyrene	<0.0250 mcg/100g
Pyrene	0.254 mcg/100g

Method References	Testing Location
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Elements by ICP Mass Spectrometry (ICP_MS_S)	Covance Laboratories - Harrogate
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Official Methods of Analysis, Method 2011.19 and 993.14, AOAC INTERNATIONAL, (Modified).
Pequette, L.H., Szabo, A., Thompson, J.J., "Simultaneous Determination of Chromium, Selenium, and Molybdenum in Nutritional Products by Inductively Coupled Plasma/Mass Spectrometry: Single-Laboratory Validation," Journal of AOAC International, 94(4): 1240 - 1242 (2011).

Polycyclic Aromatic Hydrocarbons-Low Level (LLPAH_S)	Covance Laboratories - Madison
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Covance Inc. developed method

Screening Method for the Detection of Adulterants in Weight Loss Supplements (ADULTER1_S)	Covance Laboratories - Madison
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Lukas Vaclavik, Alexander J. Krynitsky, Jeanne I. Rader, "Mass spectrometric analysis of pharmaceutical adulterants in products labeled as botanical dietary supplements or herbal remedies: a review.," Analytical and Bioanalytical Chemistry, 27: 6767-6790 (2014).

B.J. Venhuis, M.E. Zwaagstrab, P.H.J. Keizersa, D. de Kaste, "Dose-to-dose variations with single packages of counterfeit medicines and adulterated dietary supplements as a potential source of false negatives and inaccurate health risk assessments," Journal of Pharmaceutical and Biomedical Analysis, 89:158-165 (2014).

Daniel J. Mansa, Ashley C. Gucinskia, Jamie D. Dunna, Connie M. Gryniewicz-Ruzicka, Laura C. Mecker-Poguea, Jeff L.-F. Kaob, Xia Geb, "Rapid screening and structural elucidation of a novel sibutramine analogue in a weight loss supplement: 11-Desisobutyl-11-benzylsibutramine," Journal of Pharmaceutical and Biomedical Analysis, 83:122-128 (2013).

Maciej J. Bogusz, Huda Hassan, Eid Al-Enazi, Zuhour Ibrahim, Mohammed Al-Tufail, "Application of LC-ESI-MS-MS for detection of synthetic adulterants in herbal remedies," Journal of Pharmaceutical and Biomedical Analysis, 41: 554-564 (2006).

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Method References

Testing Location

Water Soluble Vitamins by LC-MS/MS (BLCMS_S)

Covance Laboratories - Harrogate

Covance Internal Method

Other supporting references:

Vitamin B12: AOAC 2011,10. Determination of Vitamin B12 in Infant Formula and Adult Nutritionals by HPLC (Vitamin B12 extraction)

Yohimbe (YOHIMBE_S)

Covance Laboratories - Anaheim

Testing Location(s)

Released on Behalf of Covance by

Covance Laboratories - Anaheim

Richard Sanders - Manager

Covance Laboratories Inc.
2951 Saturn Street
Unit C
Brea California 92821
714-524-9988

Covance Laboratories - Harrogate

Covance Laboratories Limited
Otley Road
Harrogate North Yorkshire, United Kingdom HG3 1PY
+4401423 500011

Andrew Hockin - Director



Covance Laboratories - Madison

Covance Laboratories Inc.
3301 Kinsman Blvd
Madison WI 53704
800-675-8375

Edward Ladwig - Director



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