COVANCE
THE DEVELOPMENT SERVICES COMPANY

3301 Kinsman Boulevard
Madison, WI 53704

Print Date: 11-Jun-2009 7:11:50AM

Report Date: 11-Jun-2009

Report Number: 111651-0

Supercedes Report Number: 108471-0

Certificate of Analysis

Final Report

National Institutes of Health

BLDG 14A, RM 119A8
Bethesda Maryland 20892 United States

Client Sample Name: HTI8788 **Covance Sample Number:** 186581

Project ID	NAT_INST-20090504-0005	**Receipt Date**	04-May-2009
PO Number	Govt Credit Card	**Receipt Condition**	Ambient temperature
Description	0202+0227+030609 Monkey Diet	**Login Date**	04-May-2009
		Storage Condition at Covance	-20 (+/- 10) Degrees Celsius
		Number Composited	1
		Disposal Instructions	Dispose 60 days after final reported

Analysis/Result	Result
Choline	
Choline	1790 ppm
Fat	
Fat	4.3 %
Crude Fiber	
Crude Fiber	7.9 %
Protein (N x 6.25) Dumas Method	
Protein	15.8 %
Vitamin A	
Vitamin A	9250 IU/kg
Vitamin D	
Vitamin D	4460 IU/kg
Vitamin D2	<0.200 IU/g
Vitamin E	
Vitamin E	60.0 IU/kg
Thiamin	
Thiamin	19.0 ppm
Riboflavin	
Riboflavin	17.6 ppm
Niacin	
Niacin	128 ppm
Pyridoxine Hydrochloride	
Pyridoxine Hydrochloride	21.1 ppm
Folic Acid	
Folic Acid	11.5 ppm
Vitamin B12	
Vitamin B12	72.1 mcg/kg
Biotin	
Biotin	0.312 ppm
Pantothenic Acid	
Pantothenic Acid	30.2 ppm
Iodine	
Iodine	2.02 ppm

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Analysis/Result	Result
Selenium	
Selenium	0.257 ppm
Elements by ICP Emission Spectrometry	
Calcium	1.19 %
Copper	13.4 ppm
Iron	331 ppm
Magnesium	0.211 %
Manganese	120 ppm
Phosphorus	0.804 %
Potassium	0.802 %
Sodium	0.183 %
Zinc	148 ppm
Ash	
Ash	6.33 %
Moisture	
Moisture	10.5 %
L-ascorbyl-2-phosphate	
L-ascorbyl-2-phosphate	877 ppm
Clostridium perfringens	
Clostridium Perfingens	<10 CFU/g
Escherichia coli Count	
Escherichia Coli	<10 CFU/g
Listeria	
Listeria	Negative /25 g
Salmonella BAM (Rapid method)	
Salmonella	Negative /25 g
Yeast and Mold Count	
Yeast Count	<10 CFU/g
Mold Count	<10 CFU/g
Elements by ICP Mass Spectrometry	
Antimony	0.0333 ppm
Arsenic	0.194 ppm
Cadmium	0.0438 ppm

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Analysis/Result	Result
Elements by ICP Mass Spectrometry	
Lead	0.174 ppm
Mercury	0.0113 ppm
N-methylcarbamates	
Aldicarb	<0.0200 ppm
Aldicarb Sulfone	<0.0200 ppm
Aldicarb Sulfoxide	<0.0200 ppm
Carbofuran	<0.0200 ppm
3-Hydroxycarbofuran	<0.0200 ppm
Methomyl	<0.0200 ppm
Carbaryl	<0.0200 ppm
Bendiocarb	<0.0200 ppm
Butocarboxim	<0.0200 ppm
Butoxycarboxim	<0.0200 ppm
Dioxacarb	<0.0200 ppm
Ethiofencarb	<0.0200 ppm
Fenobucarb	<0.0200 ppm
Isoprocarb	<0.0200 ppm
Methiocarb	<0.0200 ppm
Metolcarb	<0.0200 ppm
Oxamyl	<0.0200 ppm
Promecarb	<0.0200 ppm
Propoxur	<0.0200 ppm
Thiofanox	<0.0600 ppm
Organochlorinated Pesticides	
Tecnazene	<12.5 ppb
HCB	<6.5 ppb
Alpha-BHC	<12.5 ppb
Propyzamide	<25.0 ppb
DCNA	<18.5 ppb
PCNB	<10.0 ppb
Gamma-BHC	<12.5 ppb
Beta-BHC	<12.5 ppb

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Analysis/Result	Result
Organochlorinated Pesticides	
Heptachlor	<12.5 ppb
Chlorothalonil	<12.5 ppb
Delta-BHC	<12.5 ppb
Vinclozolin	<25.0 ppb
Aldrin	<12.5 ppb
DCPA	<18.5 ppb
Heptachlor Epoxide	<12.5 ppb
Endosulfan I	<12.5 ppb
Dieldrin	<12.5 ppb
Captan	<50.0 ppb
Folpet	<31.5 ppb
p,p' - DDE	<12.5 ppb
Endrin	<18.5 ppb
Oxadiazon	<37.5 ppb
Endosulfan II	<18.5 ppb
p,p' - DDD	<18.5 ppb
p,p' - DDT	<20.0 ppb
Endosulfan Sulfate	<18.5 ppb
Captafol	<31.5 ppb
Dicofol	<31.5 ppb
Mirex	<12.5 ppb
Tetradifon	<18.5 ppb
Methoxychlor	<31.5 ppb
Cis-Permethrin	<21.3 ppb
Cypermethrin	<94.0 ppb
Trans-Permethrin	<41.2 ppb
Organophosphate Pesticides	
Vapona	<15.0 ppb
Methamidophos	<15.0 ppb
Mevinphos	<25.0 ppb
Acephate	<40.0 ppb
Omethoate	<35.0 ppb

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Analysis/Result	Result
Organophosphate Pesticides	
Thimet	<20.0 ppb
Demeton-S	<25.0 ppb
Fonofos	<25.0 ppb
Diazinon	<20.0 ppb
Disulfoton	<25.0 ppb
Dimethoate	<20.0 ppb
Propetamphos	<30.0 ppb
Dichlofenthion	<30.0 ppb
Me-Chlorpyrifos	<20.0 ppb
Ronnel	<20.0 ppb
Me-Parathion	<20.0 ppb
Me-Pirimiphos	<25.0 ppb
Et-Chlorpyrifos	<25.0 ppb
Fenitrothion	<25.0 ppb
Malathion	<20.0 ppb
Et-Parathion	<20.0 ppb
Chlorfenvinphos	<40.0 ppb
Methidathion	<30.0 ppb
Prothiophos	<30.0 ppb
Ethion	<20.0 ppb
Trithion	<30.0 ppb
Phosmet	<35.0 ppb
EPN	<40.0 ppb
Azinphos-Methyl	<40.0 ppb
Phosalone	<40.0 ppb
Coumaphos	<50.0 ppb

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Print Date: 11-Jun-2009 7:11:50AM

Report Date: **11-Jun-2009**

Report Number: **111651-0**

Supercedes Report Number: **108471-0**

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Final Report

National Institutes of Health

BLDG 14A, RM 119A8
Bethesda Maryland 20892 United States

Signed on Behalf of Covance

Doug Winters
Laboratory Director

For questions on this report, please contact your Client Service Representative

Method References	Testing Location
Ash (ASHM_S:3)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL (2005) 18th Ed., AOAC INTERNATIONAL, Gaithersburg, MD, USA, Official Method 923.03.	
Biochemical Identification (CLOS_CNF:2)	**Covance Laboratories Inc.**
Biotin (BIOM_S:11)	**Covance Laboratories Inc.**
Scheiner, J. and De Ritter, "Biotin Content of Feedstuffs," Journal of Agricultural Food Chemistry, 23(6):1157-1162 (1975). (Modified)	
Wright and Skeggs, Procedures of the Society of Experimental Biology and Medicine, 56:95, (1944). (Modified)	
Methods of Analysis for Infant Formulas, Infant Formula Council, (1985). (Modified) Journal of the AOAC, 49:882, (1996). (Modified)	
Choline (COL4_S:7)	**Covance Laboratories Inc.**
Clostridium perfringens (CLOS:2)	**Covance Laboratories Inc.**
1. Compendium of Methods for the Microbiological Examination of Foods. Clostridium perfringens, 4th Edition, Chapter 34, 2001. American Public Health Association: Washington D.C. Modified. 2. Bacteriological Analytical Manual, Clostridum perfringens, Chapter 16, 2001 Food and Drug Administration, AOAC International: Gaithersburg, Maryland. Modified. 3. Clostridium perfringes in Foods: AOAC Official Method 976.30, Official Method of Analysis of the AOAC International, 18th Edition, 2005. Gaitherburg, Maryland. Modified.	
Crude Fiber (CFIB_S:2)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL (2005) 18th Ed., AOAC INTERNATIONAL, Gaithersburg, MD, USA, Official Method 962.09.	

National Institutes of Health

BLDG 14A, RM 119A8
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Method References	Testing Location
Elements by ICP Emission Spectrometry (ICP_S:11)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, (2005) 18th ED., AOAC INTERNATIONAL Gaithersburg, MD, USA, Official Methods 984.27, 985.01.	
Elements by ICP Mass Spectrometry (ICP_MS_S:10)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 993.14, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).	
Escherichia coli Count (COLC:4)	**Covance Laboratories Inc.**
Compendium of Methods for the Microbiological Examination of Foods, Colony Count Methods, 4th Edition, Chapter 6,7, American Public Health Association: Washington, D.C. (2001). Modified.	
Fat (FAAH_S:5)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 922.06 and 954.02, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Folic Acid (FOAN_S:11)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 960.46 and 992.05, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Methods of Analysis for Infant Formulas, Infant Formula Council, Atlanta, GA, Section C-2, (1985).	
Iodine (IOL_S:3)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL (2000) 17th ED., AOAC INTERNATIONAL, Gaithersburg, MD, USA, Official Method 932.21. (Modified)	
Binnerts, W.T., Analytical Chemistry, 10:78, (1954). (Modified)	
Heerspink, W., Op Deweegh, G.J., Clinical Chimica Acta, 39:327-338, (1971). (Modified)	
L-ascorbyl-2-phosphate (A2P_S:1)	**Covance Laboratories Inc.**
Listeria (LIRM:2)	**Covance Laboratories Inc.**
1. Bacteriological Analytical Manual, Listeria monocytogenes, 8th Edition, Chapter 10, 2003. Food and Drug Administration, AOAC International: Gaithersburg, Maryland. Modified.]	
2. Compendium of Methods for the Microbiological Examination of Foods, Listeria, 4th Edition, Chapter 36, 2001. American Public Health Association Washington D.C. Modified.	
3. Listeria Visual Immunoprecipitate (VIP), AOAC Official Method 997.03. Official Methods of Analysis of the AOAC International, 18th Edition, 2005. Gaithersburg, Maryland. Modified.	

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Method References	Testing Location
Moisture (M100T100_S:3)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 925.09 and 926.08, AOAC INTERNATIONAL, Gaithersburg, MD, USA,(2005).	
Niacin (NIAP_S:11)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 944.13 and 960.46, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005)	
N-methylcarbamates (CARB_S:6)	**Covance Laboratories Inc.**
Food and Drug Administration, '401: Method for N-Methylcarbamates' , Pesticide Analytical Manual, Third Ed., Vol. 1, Food and Drug Administration, Washington, D.C. (1994).	
Organochlorinated Pesticides (OPCL_S:12)	**Covance Laboratories Inc.**
Hopper, M. L. and Griffitt, K. R., 'Evaluation of an Automatic Gel Permeation Cleanup and Evaporation Systems for Determining Pesticide Residues in Fatty Samples', Journal of the Association of Official Analytical Chemists, Vol. 70, No. 4, pp. 724-726 (1987).	
Organophosphate Pesticides (OPOP_S:5)	**Covance Laboratories Inc.**
Hopper, M. L. and Griffitt, K. R., 'Evaluation of an Automatic Gel Permeation Cleanup and Evaporation Systems for Determining Pesticide Residues in Fatty Samples', Journal of the Association of Official Analytical Chemists, Vol. 70, No. 4, pp. 724-726 (1987).	
Pantothenic Acid (PANN_S:10)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 945.74 and 960.46, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005)	
Protein (N x 6.25) Dumas Method (DGEN_S:3)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 968.06 and 992.15, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Pyridoxine Hydrochloride (B6A_S:11)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 961.15, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Atkins, L., Schultz, A. S., Williams, W. L., and Frey, C. N., "Yeast Micro-biological Methods for Determination of Vitamins," Industrial and Engineering Chemistry, Analytical Edition, 15:141-144, (1943).	

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Method References	Testing Location
Riboflavin (B2FV_S:9)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 940.33 and 960.46, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
The United States Pharmacopeia, 29th Ed., p. 1913, United States Pharmacopeial Convention, Inc.: Rockville, Maryland (2005).	
Salmonella BAM (Rapid method) (SARM:2)	**Covance Laboratories Inc.**
1. Bacteriological Analytical Manual, Salmonella, Chapter 5, 8th Edition, 2006. Food and Drug Administration, AOAC International: Gaithersburg, Maryland. Modified. 2. Compendium of Methods for the Microbiological Examination of Foods, Salmonella, Chapter 37, 4th Edition, 2001. American Public Health Association. Washington D.C. Modified. 3. Salmonella in Foods, AOAC Official Method 990.13, DNA hybridization Method. Official Methods of Analysis of the AOAC International, 18th Edition, 2005. Gaithersburg, Maryland. Modified.	
Selenium (SEHG_S:4)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 986.15, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Thiamin (BIDE_S:6)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 942.23, 953.17, and 957.17, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Vitamin A (AFD1_S:4)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 974.29, 992.04, and 992.06, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
Thompson, J.N., and Duval, S., "Determination of Vitamin A in Milk and Infant Formula by HPLC", Journal of Micronutrient Analysis, 6:147-159, (1989).	
Vitamin B12 (B12F_S:11)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 952.20 and 960.46, AOAC INTERNATIONAL, Gaithersburg, MD, USA, (2005).	
The United States Pharmacopeia, 29th Ed., pp. 603-4, United States Pharmacopeial Convention, Inc.: Rockville, Maryland (2005).	
Methods of Analysis for Infant Formulas, Infant Formula Council, Atlanta, Georgia, Section C-2, (1985).	
Vitamin D (DFD1_S:7)	**Covance Laboratories Inc.**
Official Methods of Analysis of AOAC INTERNATIONAL (2000) 17th Ed., AOAC INTERNATIONAL, Gaithersburg, MD, USA, Official Method 982.29.	

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Method References | Testing Location

Vitamin E (EFD1_S:3) — **Covance Laboratories Inc.**

Cort, W. M., Vincente, T. S., Waysek, E. H., and Williams, B. D., Journal of [Agricultural Food Chemistry, 31:1330-1333 (1983). (Modified)

Speek, A. J., Schijver, J., and Schreurs, W. H. P., Journal of Food Science, 50:121-124 (1985). (Modified)

McMurray, C. H., Blanchflower, W. J., and Rice, D. A., Journal of the Association of Official Analytical Chemists, 63: 1258-1261 (1980).

Yeast and Mold Count (YMCM:4) — **Covance Laboratories Inc.**

1. Bacteriological Analytical Manual, Yeasts, Molds and Mycotoxins. Chapter 18, 8th Edition, 2001. Food and Drug Administration, AOAC International: Gaithersburg, Maryland. Modified.

2. Compendium of Methods for the Microbiological Examination of Foods, Yeasts and Molds, Chapter 20, 4th Edition, 2001. American Public Health Association, Washington D.C. Modified.

3. Yeast and Mold Counts in Foods, AOAC Official Method 997.02. Dry Rehydratable Film Method (Petrifilm). Official Methods of Analysis of the AOAC International, 18th Edition, 2005. Gaithersburg, Maryland. Modified.

Testing Location(s)

Covance Laboratories Inc.
3301 Kinsman Blvd
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608-241-4471

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