

PRODUCT QUALITY CONTROL & RESEARCH DIVISION

VISION : Safe and Quality Coconut Products

MISSION : To help improve the well-being of the present and future generations of coconut farmers, processors and consumers.

OBJECTIVES

General: To maintain the country's position as a reliable and stable supplier of export quality coconut products/ by-products in the world market.

Specific:

- ❖ To conduct scientific investigation of export products so that only quality products will be exported, thus, getting good price abroad.
- ❖ To conduct research on quality improvement of coconut products and by-products.
- ❖ To establish, review and update product quality standards in order to be at par with world standards.
- ❖ To make the PQCRD Laboratory an Internationally Accredited Laboratory.

FUNCTIONS

- Establishes, reviews, updates product quality standards and classification for coconut products and by-products.
- Conducts research, methodologies and scientific investigations in relation to quality improvement and contaminant control of coconut products and by-products.
- Conducts laboratory analysis/ testing, monitoring and inspection of product samples and/ or plant facilities.
- Establishes standard sampling procedures/ techniques for coconut products and by-products.
- Provides technical services and consultation to PCA units, academe and different sectors of the coconut industry.

STAKEHOLDERS SERVED

1. Coconut Manufacturers/Processors	
<p>a) <u>Desiccators</u></p> <ol style="list-style-type: none"> 1. Franklin Baker Co. of the Phils. 2. Primex Coco Products, Inc. 3. Superstar Coconut Prods. Co., Inc. 4. Peter Paul Phils., Inc. 6. Fiesta Brands, Inc. <p>b) <u>Nata de Coco Processors</u></p> <ol style="list-style-type: none"> 1. Mc. O. Colico Brokerage & Gen. Services <p>c) <u>Charcoal Manufacturers & other private individual</u></p> <ol style="list-style-type: none"> 1. Liberato M. Saavedra 2. Edgar Asuero 3. LGF Import-Export 4. YN Camtex 5. Chong Yuen Phils. Trading 6. Covenant Trading Corp. 7. NEP Company, Inc. <p>d) <u>Coconut Oil Millers</u></p> <ol style="list-style-type: none"> 1. New Leyte Edible Oil Mfg. Corp. 2. Third Millennium Oil Mills, Inc. 3. Tantuco Enterprises, Inc. 4. Poms Ventures Corp. 5. Cagayan de oro Oil Co., Inc. 6. Granexport Mfg. Corp. 7. Int'l. Copra Export Corp. 8. Interco Mfg. Corp. 9. Phil. Int'l. Dev't., Inc. 10. Cargill Phils. Inc. 11. San Miguel Corp. 12. Alpa Oil Mill Corp. 13. La Suerte Oil Mill & Refinery 14. Unex Industries, Inc. 15. Arcoco Oil Mill 16. Unideco Consolidated Mfg. Inc. 17. San Pablo Mfg. Corp. 18. Trans Asia Phils.. Mfg. Ind. Corp. 19. RQA Marine & Cargo Survey Corp. 20. Sphere Marine Services, Inc. 21. JTP Commercial Oil Mill 22. Dumaguete Coconut Oil Mills, Inc. 	<p>e) <u>Virgin Coconut Oil Producers</u></p> <ol style="list-style-type: none"> 1. Coconut Haven 2. Matling Industrial & Company 3. IAT Coconut Products 4. Laureece Phils. Herbal Products 5. Nutriol Enterprises 6. Prosource Int'l., Inc. 7. Puentespina Orchids & Tropical Plants, Inc. 8. Garin Farm 9. PJB Company, Inc. 10. San Benito 11. Baay Upland Farmers Assoc. Inc. 12. Maria Makiling 13. Goodlife Goodhealth Trading 14. Unified Growth Corp. 15. Elixirs Pacific Int'l. Corp. 16. Cofre Fuerte Mfg. Corp. 17. RE Technology Dev't. Carbon Corp. 18. Sunblest Food Mfg. Inc. 19. Mt. Banahaw Fountain of Youth 20. Thera Oil 21. Yakka Trading 22. Lily's Virgin Coconut Oil 23. Biological Homeopathic Medical Corp. 24. Manila Herbal 25. Atom Ind'l. Sales & Services, Inc. 26. Basic Research & Dev't. Corp. 27. Flower Island 28. Phil. Fruits & Veg. Industries, Inc. 29. Carica Herbal Health Products 30. Filwell 31. XVCO Enterprises 32. Coco Plus Aquarian Development Corp. 33. Di-Catalyst International Corp. 34. Five Jewels Corp. 35. Cervana Corp. 36. Boon Tradex 37. Sunshine Virgin Coconut Oil 38. Juelmes Virgin Coconut Oil Products
2. PCA, (Central & Regional Offices)	
3. Other Government Sectors	
<ol style="list-style-type: none"> 1. Phil. Federation for Environmental Concern (NGO) 	
4. Academe	

5. Private Sectors

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| 1. Precision Analytical Services, Inc. | 7. Croley Foods Mfg. Corp. |
| 2. Aspen Commercial | 8. GTZ |
| 3. Sucre Enterprises | 9. Green Palette |
| 4. Phil. Fruits & Veg. Industries, Inc. | 10. Janes Castor & Coco Oil Mill Corp. |
| 5. Will Int'l. Sales Corp. | 11. Fruit & Magic Co., Inc. |
| 6. Five Star Marketing | 12. Tem Ngum Food Corp. |

ANALYSIS/TESTS AND NUMBER OF DAYS REQUIRED TO COMPLETE ANALYSIS

SERVICES	PROCESSING TIME	ANALYSIS CONDUCTED/ FEES/METHOD USED	PERSONNEL
A. CHEMICAL ANALYSIS			Cristina Anayron
* Crude Coconut Oil	* 1 – 2 days	Moisture (Oven method) – P200.00	
* Refined Bleached Coconut Oil	* 1 – 2 days	(Toluene Method) – 300.00	
* Acid Oil	* 2 – 3 days	Free Fatty Acid – 200.00	
		(Titration method)	
		Color – 100.00	
		Saponification Value – 300.00	
		Iodine Value – 200.00	
		Peroxide Value – 200.00	
		Acid Value – 200.00	
		Unsaponifiable Matter – 300.00	
Desiccated Coconut	3 days	Moisture (Oven method) – 200.00	
		Oil Content (Soxhlet Method) – 500.00	
		Free Fatty Acid – 300.00	
		(with solvent extraction)	
Coconut Shell	3 days	Moisture (Oven method) – 200.00	
Charcoal		Ash – 500.00	
		Volatile Combustible Matter – 400.00	
Copra Meal	3 days	Moisture (Oven method) – 200.00	
		Oil Content (Soxhlet method) – 500.00	
Copra	3 days	Moisture (Oven method) – 200.00	
		Oil Content (Soxhlet method) – 560.00	
		FFA (Titration method with solvent extraction) – 300.00	
		Color (Lovibond) – 100.00	
B. AFLATOXIN ANALYSIS			Erlinda Chan Ederlinda Repe
Desiccated Coconut	5 working days	(Bond-Elut HPTLC method) – 2,500.00	
Copra			
Copra meal/cake/pellets			
Coconut Oil			
C. PAH ANALYSIS			Erlinda Chan Ederlinda Repe
Coconut Oil	2 – 3 days	– 5,000.00	
Copra	3 – 5 days	– 5,750.00	
Copra cake/meal/pellets	3 – 5 days		
D. FORTIFICATION OF VITAMIN A			

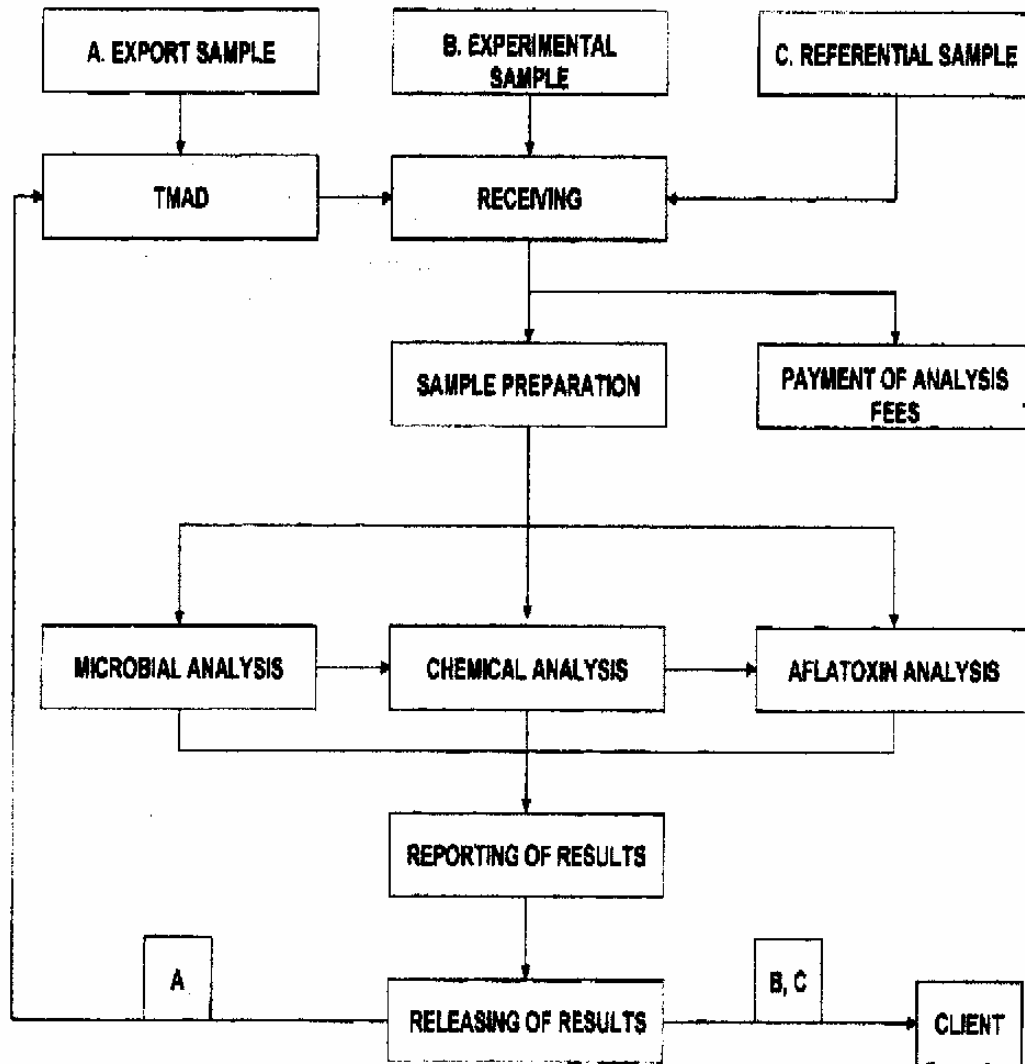
E. MICROBIAL ANALYSIS	5 working days	Salmonella	– 300.00	Fleda Paguirigan Josephine Nieva
		E. coli	– 250.00	
		Total Plate Count	– 250.00	
		Coliform Count	– 250.00	
		Mold & Yeast Count	– 250.00	
		Anaerobic Bacteria	– 250.00	
		Staphylococcus	– 250.00	
		Enterobacter	– 250.00	
		pH	– 100.00	
		Anaerobic Plate Count	– 250.00	
		Formalin Test	– 200.00	
		Physical & Sensory Evaluation	– 150.00	
		Commercial Sterility	– 250.00	
		Certification Fee	– 100.00	
		Re-issuance of Certificate	– 50.00	

- Duration depends on the analysis requested

PROCESS FLOW CHART

PRODUCT QUALITY CONTROL & RESEARCH DIVISION

STANDARD OPERATING PROCEDURE



EXISTING LABORATORY FEES & CHARGES

	<u>RATES</u>
Chemical Analysis	
a. <u>Copra</u>	
1. Moisture (Oven Method) -----	P 200.00
2. Oil Content (Soxhlet Method) -----	560.00
3. Free Fatty Acid (Titration Method with solvent extraction) -----	300.00
4. Color (Lovibond) -----	100.00
b. <u>Coconut Oil</u> (Crude, RBD, Cochin, Hydrogenated Coconut Oil & Paring Oil)	
1. Moisture (Oven Method) -----	200.00
2. Free Fatty Acid (Titration Method) -----	200.00
3. Color (Lovibond) -----	100.00
4. Saponification Value -----	300.00
5. Iodine Value (Hanus Method) -----	200.00
6. Peroxide Value -----	200.00
7. Acid Value -----	200.00
c. <u>Coconut Acid Oil</u>	
1. Moisture (Toluene Method) -----	300.00
2. Free Fatty Acid (Titration Method) -----	200.00
3. Color (Lovibond) -----	100.00
4. Saponification Value -----	300.00
5. Iodine Value (Hanus Method) -----	200.00
6. Unsaponifiable Matter -----	300.00
d. <u>Coconut Shell Charcoal and Charcoal Briquette</u>	
1. Moisture (Oven Method) -----	200.00
2. Ash -----	500.00
3. Volatile Combustible Matter -----	400.00
e. <u>Copra Cake/ Meal/ Pellets</u>	
1. Moisture (Oven Method) -----	200.00
2. Oil Content (Soxhlet Method) -----	500.00
f. <u>Desiccated Coconut</u>	
1. Moisture (Oven Method) -----	200.00
2. Oil Content (Soxhlet Method) -----	500.00
3. Free Fatty Acid ----- (with solvent extraction)	300.00
g. <u>Coconut Cream & Coconut Milk</u>	
1. Total Coconut Solids -----	120.00
2. Non-fat Coconut Solids -----	120.00
3. Coconut Fat -----	200.00
4. Water -----	120.00
h. <u>Coconut Water</u>	
1. Total Coconut Solids -----	120.00
2. Non-fat Coconut Solids -----	120.00
3. Water -----	120.00
i. <u>Coconut Pith</u>	
1. Moisture (oven method) -----	200.00
2. Ash -----	500.00
3. Extractives -----	800.00

	4. Acid-insoluble lignin -----	1,000.00
j.	<u>Special Analysis</u>	
	1. Heating Value ----- (Oxygen Bomb Calorimeter Method)	1,500.00
	2. Silica & Sand -----	650.00
	3. Protein (Kjeltec Method) -----	800.00
	4. Crude Fiber -----	800.00
	5. Sulfur Dioxide (Titration Method) -----	250.00
k.	<u>PAH Analysis</u>	
	Coconut Oil -----	5,000.00
	Copra, Copra Meal, Desiccated Coconut -----	5,750.00
	Aflatoxin Analysis (Bond Elut-HPTLC Method) -----	2,500.00

Microbiological Analysis

a.	<u>Desiccated Coconut & Toasted Coconut</u> (Per composite of 30,000 lbs. per cut)	
	1. Salmonella -----	300.00
	2. E. Coli -----	250.00
	3. Total Plate Count -----	250.00
	4. Coliform Count -----	250.00
	5. Molds & Yeast Count -----	250.00
b.	<u>Coco Cream Powder, Creamed Coconut, Macapuno or Young Fruit Preserved, Frozen Coco Milk & Shredded Coconut</u>	
	1. Salmonella -----	300.00
	2. E. Coli -----	250.00
	3. Total Plate Count -----	250.00
	4. Coliform Count -----	250.00
	5. Molds & Yeast Count -----	250.00
c.	<u>Canned Coco Milk (Gata), Coconut Juice/Coco Water in Cans or Tetrapak</u>	
	1. Salmonella -----	300.00
	2. E. Coli -----	250.00
	3. Total Plate Count -----	250.00
	4. Coliform Count -----	250.00
	5. Molds & Yeast Count -----	250.00
	6. Anaerobic Bacteria -----	250.00
d.	<u>Special Analysis</u>	
	1. Staphylococcus -----	250.00
	2. Enterobacter -----	250.00

Nata De Coco

a.	Acidified Cooked Nata de Coco	
	1. pH -----	100.00
	2. Aerobic Plate Count -----	250.00
	3. Physical & Sensory Evaluation -----	150.00
	4. Formalin Test -----	200.00
b.	Processed Nata de Coco (low acid)	
	1. pH -----	100.00
	2. Commercial Sterility -----	250.00
	3. Physical & Sensory Evaluation -----	150.00
	4. Formalin Test -----	200.00
c.	Raw Nata de Coco	
	1. pH -----	100.00
	2. Physical & Sensory Evaluation -----	150.00
	3. Formalin Test -----	200.00

Other Fees

1. Certification -----	100.00
2. Re-issuance of Certificate -----	50.00

SHELF-LIFE STUDY for VIRGIN COCONUT OIL under NORMAL ROOM STORAGE CONDITIONS
at the Product Quality Control and Research Division.

The following tests are being conducted:

- Baseline/ Zero Point : % Moisture, % Free Fatty Acid (as Lauric acid),
Peroxide Value, Sensory Evaluation, *Salmonella*, *E. Coli*,
Total Plate Count, Coliform Count, Molds & Yeasts Count
- For the First month : % FFA, Molds & Yeasts Count
- For the First six months,
on a monthly basis : % FFA
on a bi-monthly basis : Peroxide Value
on the sixth month : Sensory Evaluation
- For the next six (6) months,
on a bi-monthly basis : %FFA, Peroxide Value
on the 12th month : Sensory Evaluation, *Salmonella*, *E. Coli*, Total Plate Count, Coliform
Count and Molds & Yeasts Count
- For the Second Year,
on a quarterly basis : % FFA, Peroxide Value
on a semi-annual basis : Sensory Evaluation
on the 24th month : *Salmonella*, *E. Coli*, Total Plate Count, Coliform Count and Molds &
Yeasts Count

For the Ist six months	Month	% Moisture	%FFA	PV	Sensory/ Color	MYC	Complete Micro	Total
Baseline		200.00	200.00	200.00	100.00		1,300.00	2,000.00
Ist month			200.00			250.00		450.00
2 nd month			200.00	200.00				400.00
3 rd month			200.00					200.00
4 th month			200.00	200.00				400.00
5 th month			200.00					200.00
6 th month			200.00	200.00	100.00			500.00
For the next six months on a bi-monthly:								
8 th month			200.00	200.00				400.00
10 th month			200.00	200.00				400.00
12 th month			200.00	200.00	100.00		1,300.00	1,800.00
For the 2nd year on a quarterly:								
Ist quarter			200.00	200.00				400.00
2nd qtr/ Semi-Annual			200.00	200.00	100.00			500.00
3rd quarter			200.00	200.00				400.00
4th qtr/ 24 th mo.			200.00	200.00	100.00		1,300.00	1,800.00
Total - - - - -								9,850.00

NOTE: Sample should be submitted in bottles of 100ml each for microbiological and chemical analysis for the duration of 24-month period coming from one batch processing only. For baseline, 12th and 24th month analysis submit 250ml each for microbiological and chemical analysis.
If sample has growth for MYC on the first month analysis for MYC will be continued.

Submit samples for a total of 14 months analysis.
= 6 bottles of 250 ml
= 22 bottles of 100 ml

Results will be released upon request.

SHELF-LIFE STUDY for COCONUT FLOUR under NORMAL ROOM STORAGE CONDITIONS at the Product Quality Control and Research Division.

The following tests will be conducted:

Baseline/ Zero Point : % Moisture, % Free Fatty Acid (as Lauric acid), % Oil, *Salmonella*, *E. Coli*, Total Plate Count, Coliform Count, Molds & Yeasts Count

For the succeeding month : % Moisture, % FFA, Total Plate Count, Molds & Yeasts Count on a monthly basis for one year

Results will be released upon completion of the shelf-life testing cycle for a duration of 12 months.

Note: If sample is found positive for *Salmonella* & *E. coli* and has growth for Coliform count on the initial analysis such tests will be continued until the end of the shelf-life study.

	Month	% Oil	% Moisture	% FFA	Salmonella	E. Coli	TPC	MYC	Coliform Count	Total
Baseline		500.00	200.00	300.00	300.00	250.00	250.00	250.00	250.00	2,300.00
Ist			200.00	300.00			250.00	250.00		1,000.00
2nd			200.00	300.00			250.00	250.00		1,000.00
3 rd			200.00	300.00			250.00	250.00		1,000.00
4 th			200.00	300.00			250.00	250.00		1,000.00
5 th			200.00	300.00			250.00	250.00		1,000.00
6 th			200.00	300.00			250.00	250.00		1,000.00
7 th			200.00	300.00			250.00	250.00		1,000.00
8 th			200.00	300.00			250.00	250.00		1,000.00
9 th			200.00	300.00			250.00	250.00		1,000.00
10 th			200.00	300.00			250.00	250.00		1,000.00
11 th			200.00	300.00			250.00	250.00		1,000.00
12th			200.00	300.00			250.00	250.00		1,000.00
TOTAL ANALYSIS FEES - - - P14,300.00										

Sample Requirement for the Analysis

For Microbiological Analysis – 13 packs x 100 grams

For Chemical Analysis – 13 packs x 500 grams

*For this analysis only 9 packs x 500 gms of coconut flour sample has to be submitted since you have already submitted 2 1-kg sample.