

Organic Application Note

Oil in Palm Kernel

Standard Method Used for Comparison

Soxhlet

Accessories

501-081 Glass Wool; 502-327 LECO-Dry; 502-369 Kimwipe®; 502-371 Ethanol

Collection Vial Preparation Procedure

1. Cut 1.3 to 1.5 g of glass wool from the end of the glass wool rope.
2. Pull the compact section of glass wool apart so that the material is loosened considerably.
3. Pack the loosened glass wool into the collection vial with a clean spatula, a little at a time. The goal is to have random, not vertical orientation of wool strands.
4. Tare the empty balance pan.
5. Weigh collection vial and enter initial vial weight into the instrument.
6. Install the collection vial on the instrument collection system.

Sample Preparation Procedure

1. Place 2.1 to 2.2 g of LECO-Dry into a 50 ml beaker.
2. Place beaker with LECO-Dry on balance and tare the weight.
3. Drop 0.9 to 1.1 g of sample onto the LECO-Dry.
4. Enter the sample weight into the instrument.
5. Remove the beaker from the balance. Thoroughly mix sample with LECO-Dry, using a clean spatula.
6. Add 1.0 ml of denatured ethanol by pipette, onto the sample.
7. Thoroughly mix the sample again, using a clean spatula. Prepared sample should not be sticky or adhere to the sides of the beaker. If this happens, start the procedure again using less sample material.
8. Install a lower end-cap assembly on a thimble and place in a thimble stand.
9. Pack 1/4 of a Kimwipe into the bottom of the thimble by folding it once and packing it into the bottom of the thimble with a clean spatula.
10. Transfer the prepared sample into the thimble using the funnel.
11. Install the upper end-cap assembly on the thimble.

Extraction Parameters/Procedure

1. Set up (or recall and activate) the following instrument parameters:

Extraction Pressure:	9000 psi
Extraction Temperature:	100°C
HVR Temperature:	100°C
Hold Time:	15 minutes
Extraction Time:	45 minutes
Flow Rate:	1.3 lpm
2. The pump head should be at 0°C or below from the last set of extractions. However, the refrigeration system times out and stops 20 minutes after extractions end. If the system has timed out, pre-cool the pump head by pressing any key on the key pad. The thimble and HVR temperatures should also be at set values. Temperatures can be displayed using the "Ambient Monitor" menu.
3. Insert the thimbles into the instrument and press the START key. The extraction will automatically take place, and the system will depressurize.



TFE2000

Post-Extraction Manipulations

1. Remove the collection vials from the instrument.
2. Using the thimble removal tool, remove the thimbles and place them in the thimble stand to cool.
3. Microwave three collection vials together on high for three minutes in a 1000 watt household microwave. (The wattage rating of the microwave is usually found on the serial number sticker or serial number plate.) The time may be extended to four or five minutes for 750 watt microwaves.
4. Set aside vials and let them cool for 15 minutes before weighing.
5. Tare the empty balance pan.
6. Weigh each collection vial and enter the weight into the instrument.
7. Results will be automatically calculated. Choose the print option to receive a printout of the results.

Typical Results

Sample ID	Weight (g)	TFE2000 Fat (%)	Standard Method Soxhlet (%)	Sample ID	Weight (g)	TFE2000 Fat (%)	Standard Method Soxhlet (%)
#1	1.0987	11.74	11.69	#6	1.0382	11.67	#6
	1.0767	11.86			1.0113	11.41	
	1.0717	11.73			1.0690	11.72	
	Average	11.78			Average	11.60	
	Std. Dev.	0.07		Std. Dev.	0.17		
#2	1.0068	9.94	9.96	#7	1.0052	11.40	#7
	1.0177	10.01			1.0044	11.29	
	0.9998	10.28			1.0415	11.41	
	Average	10.08			Average	11.37	
	Std. Dev.	0.18		Std. Dev.	0.07		
#3	1.0113	6.36	6.12	#8	1.0175	6.25	#8
	1.0241	6.30			1.0220	6.13	
	1.0086	6.55			1.0546	6.37	
	Average	6.40			Average	6.25	
	Std. Dev.	0.13		Std. Dev.	0.12		
#4	1.1522	5.98	5.26	#9	1.0332	4.99	#9
	1.0391	5.96			1.1489	5.04	
	1.1337	6.02			1.0146	5.09	
	Average	5.98			Average	5.04	
	Std. Dev.	0.03		Std. Dev.	0.05		
#5	1.0846	9.75	#5	#10	1.0888	5.10	#10
	1.0144	9.68			1.0013	5.08	
	1.0148	9.52			0.9928	5.04	
	Average	9.65			Average	5.07	
	Std. Dev.	0.12		Std. Dev.	0.03		



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