

Reportnr.	: 99794 / 1	Disponent Number :	
Product recognized as	: Biomass	Sampling Date	: 13-Dec-2006
Product Specification	: Malaysian Palm Kernel Expellers in bulk	Sample size (kg)	: 0,937
Reference	:	Sealed / Seal Code	: Yes / J007380
Jar/Label/Bar Code	:	Sample Arrival Date	: 27-Dec-2006 13:24
Packing	: Plastic, ambient	ReportDate Version	: 15-Jan-2007 09:44
Sample Type	: BIS		

Composition Determination

Parameter	Amount (a.r.)	Amount (o.d.)	Amount (as det.)	Amount (d.a.f.)		
Total Moisture	9,43				%	Q
Moisture Airdry			9,68		%	Q
Ash	4,68	5,17	4,67		%	Q
Volatile matter incl. moisture			78,81		%	Q
Volatile matter	69,32	76,54	69,13	80,71	%	
Fixed Carbon	16,57	18,29			%	
Gross Calorific Value	4294	4741	4282	5000	kcal/kg	Q
	17,98	19,85	17,93	20,93	GJ/mt	
Nett Calorific Value (cV)	3969				kcal/kg	
	16,62				GJ/mt	
	7144				B.T.U.'s/Lb	
Hydrogen	5,56	6,14	6,62	6,47	%	Q
S (Sulphur)	0,24	0,27	0,24	0,28	%	Q

Contaminations

Metal and other elements

Parameter	Amount (a.r.)	Amount (o.d.)	Amount (as det.)		
Cd (Cadmium)	0,026	0,029	0,026	mg/kg	Q
Pb (Lead)	0,71	0,79	0,71	mg/kg	Q
As (Arsenic)	1,223	1,351	1,220	mg/kg	Q
Hg (Mercury)	< 0,020	< 0,020	< 0,020	mg/kg	Q
Zn (Zinc)	45,5	50,3	45,4	mg/kg	Q
Ni (Nickel)	3,6	4,0	3,6	mg/kg	
Cr (Chromium)	6,3	7,0	6,3	mg/kg	
Cl (Chlorine)	0,180	0,198	0,179	%	Q
Cu (Copper,AAS)	24,08	26,58	24,01	mg/kg	Q
V (Vanadium)	5,3	5,9	5,3	mg/kg (ppm)	

ANNEX

Method Descriptions

Composition Determination

Common

Method Description	Method Code
Determination of ash; gravimetric method	ISO 1171/B:NTA 8200
Determination of carbon (C), nitrogen (N), hydrogen (H) with the elementanalyser	ASTMD5373/B:NTA 8200
Determination of gross calorific value by bombcaloric method and calculation of net calorific value	ISO 1928/B:NTA 8200
Determination of moisture in the analyse sample; gravimetric method ISO 11722/Biomass:NTA 8200/ ASTM D3173-87 (1996)	
Determination of moisture in the analyse sample; gravimetric method ISO 589/Biomass NTA 8200/ASTM D2961-95a	
Determination of sulfur (S) with the elementanalyser	Own method
Determination of volatile matter content; gravimetric method	ISO 562/B:NTA 8200

Contaminations

Metal and other elements

Method Description	Method Code
Determination of arsenic (As); hydrid-AAS, Destruction :NEN-EN 14084 ; analysis: draft NEN-EN 14546/(14627)	Own method
Determination of copper (Cu); AAS, Equivalent to NEN-EN-ISO 6869 Wood: own method	Own method
Determination of fluoride (F); IC method	Own method
Determination of lead (Pb); grafit AAS, Destruction :NEN-EN 14084 ; analysis: NEN-EN 14083	Own method
Determination of mercury (Hg); AAS, Destruction :NEN-EN 14084 ; analysis: NEN-EN 13806	Own method
Determination of zinc (Zn); AAS. Eq. to NEN-EN-ISO 6869 Wood: own method	Own method