Environmental Analysis Laboratory
Southern Cross University

LAB. REF. E1589

MAY 7, 2015

BTU ANALYSIS & FLAMMABILITY REPORT

- Increase workplace safety
- Create less waste
- Lower the costs of spills and leaks

NSF Nonfood Compounds Program Listed (J1) #152371

OH&S Occupational Health & Safety 2015 New Product of the Year

NAE 250 Award Winner 2016

OMRI Listed For Organic Use

SpillFix®

Environmentally responsible solutions for a safer workplace

american greenventures

American Green Ventures (US), Inc.
180 Towerview Court Cary
North Carolina 27513
www.spillfix.com

LOSS ON IGNITION ANALYSIS

By Environmental Analysis Laboratory, Southern Cross University,
Tel. 02 6620 3678, website: scu.edu.au/eal

1 sample supplied by Galuku International Pty Ltd
(Suite 2, 665 Old South Head Rd, Vaucluse, 2030) on the 7th May, 2015.

Lab. Job No. E1589
Analysis requested by Joe Davids
Project: SpillFix

Checked by: Graham Lancaster, Laboratory Manager

SAMPLE CODE	METHODS REFERENCE	Composite Sample 1 SpillFix (refer note 5)
		E1589/1 (Average Results for 10 subsamples)
Moisture Content (%)	APHA 2540G	55.8
Total Solids Residue (%)	APHA 2540G	44.2
ASH (%) of the Solid Residue	** APHA 2540G	21.5
Volatile Solids (%) of the Solid Residue	** APHA 2540G	78.5

Notes:
1. Methods from Rayment and Lyons, Soil Chemical Methods - Australasia
2. All results as dry weight DW - samples were dried at 105º C for 48hrs prior to crushing and analysis.

RESULTS OF XRAY FLUORESCENCE ANALYSIS

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		RF Compound Concentration (%)											LECO Concentration (%)	
Client ID	EAL Sample ID	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	SO_3	K_2O	CaO	Fe_2O_3	Cl	Trace Compounds: TiO_2, Cr_2O_3, MnO, Co_3O_4, NiO, CuO, ZnO, Rb_2O, SrO, ZrO_2, SnO_2, TeO_2, BaO, PbO, Br	C	N
SpillFix	E1589/1	4.089	4.302	5.804	32.986	1.013	3.324	24.129	9.643	5.469	7.177	36.71	36.28	0.43

Note 1: Intensities were measured on a PANalytical Epsilon 3 X-Ray Fluorescence (XRF) Analyzer for all elements with an atomic mass of fluorine or greater. Concentrations were calculated against Omnian standards in Panalytical Epsilon 3 Software; as no matrix corrections were applied, the data should be considered semi-quantitative.
Note 2: Raw coconut pith was ashed at 550° C for 16 h to remove organic matter.
Note 3: The ashed sample was bound with wax (9:1) and pressed as a pellet for 30 sec at 20 t pressure.
Note 4: Carbon and nitrogen were measured on the raw sample, before ashing, with a LECO Trumac CNS Analyzer.
Note 5: Normalized results presented.

BTU ANALYSIS REPORT

Coir is a natural and renewable resource that is free of any chemicals and toxins, produced as a by-product when coconut husks are processed for the extraction of the long fibers.

The coir used in SpillFix Industrial Organic Absorbent is washed, heat treated, screened and graded to a unique absorbent specification before being packaged.

SpillFix Industrial Organic Absorbent is consistent and uniform in texture and is a completely homogeneous material composed of millions of capillary micro-sponges.

It demonstrates a preference for hydrocarbons over water and will remove hydrocarbons from an oil/water emulsion.

SpillFix Industrial Organic Absorbent is a highly stable absorbent that is suitable for use in a wide range of hazardous spill applications. The inert nature of the media does not cause any reaction with unstable liquid chemicals.

Sample Name: SpillFix Industrial Organic Absorbent (Alone) **Sample Type (Matrix):** Solid (Coir)

Parameter	Analysis Method	Analysis Date	Result	Units
Heating Value (BTU)	D-5865	4/19/12	5692	BTU/lb

Sample Name: SpillFix Industrial Organic Absorbent (With Oil) **Sample Type (Matrix):** Solid (Coir After Absorption)

Parameter	Analysis Method	Analysis Date	Result	Units
Heating Value (BTU)	D-5865	4/19/12	12051	BTU/lb

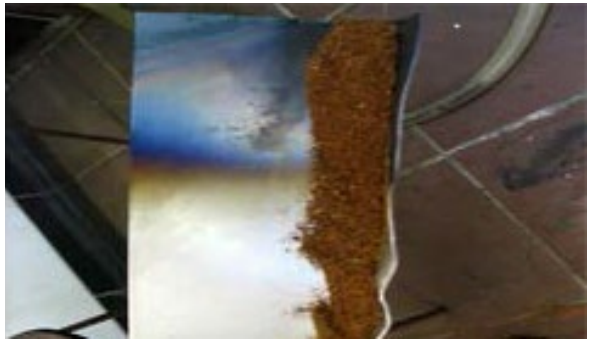
Sample Name: SpillFix Industrial Organic Absorbent (With Paint) **Sample Type (Matrix):** Solid (Coir After Absorption)

Parameter	Analysis Method	Analysis Date	Result	Units
Heating Value (BTU)	D-5865	4/19/12	3409	BTU/lb

Test for Determining

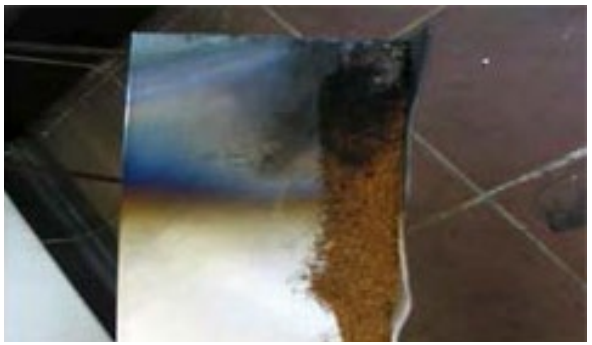
Flammability of Spillfix Industrial Organic Absorbent

(Based on the Burning Rate Test as per Clause 33.2.1.4.3.2 in the UN recommendations)



Test: On pic.1, as per the test requirements, is a 200 mm strip (20mm wide by 10 mm high) of the SpillFix Organic. It should be noted whether combustion propagates along 200 mm of the strip within the 2 minutes test period.

Pic 2. - A hot flame (min. temperature 1000C) from a gas burner was applied for 2 minutes. On pic 3. it can be seen that the 200 mm strip of the product didn't burn within the 2 minute test period. During the test the product was smoldering only at the place exposed to the flame.



Conclusion: The above shows that SpillFix Organic should not be classified as a flammable solid. SpillFix Organic can be classified as Not Readily Combustible Solid of Division 4.1.

Flammability Comparison

Test after absorption of oil spill (oil used: AWS – 68)

Test: The same Burning Test was repeated, this time comparing two products: SpillFix Organic and Diatomite. After absorbing oil AWS 68, a hot flame from a gas burner was applied for 2 minutes. The final result can be seen above. The product Diatomite caught fire, see pic B. This is because Diatomite has less absorbing capacity than SpillFix Organic and more of the oil was released when exposed to the hot flame. On the other side, SpillFix Organic having a greater absorbing capacity didn't release the absorbed oil when exposed to the hot flame and the product didn't catch fire, it was only smoldering – see pic A.

Conclusion: The above shows that SpillFix Organic has a greater absorbing capacity and is holding the absorbed oil better. However the two products should be used with caution when absorbing flammable spills.

SpillFix Organic after the test (pic A)

Diatomite clay after the test (pic B)