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Report No: USR:W214-0584-01
Issue No: 1
This report replaces all previous issues

Analytical Test Report

Client: KIRTLAND PRODUCTS
 1 Altair Drive
 Boyne City, MI 49812
Attention: Thomas Johnson
PO No:

Signed: *Stephen Sundeen*
 Stephen Sundeen
 Chemistry Laboratory Manager
Date of Issue: 7/14/2014
 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

Sample Details
Sample Log No: W214-0584-01 **Sample Date:**
Sample Designation: June 30 2014 **Sample Time:**
Sample Recognized As: Pellets **Arrival Date:** 7/2/2014

Test Results

| | METHOD | UNITS | MOISTURE FREE | AS RECEIVED |
|---|--------------|---------------------|---------------|-------------|
| Moisture Total | ASTM E871 | wt. % | | 6.13 |
| Ash | ASTM D1102 | wt. % | 0.43 | 0.40 |
| Volatile Matter | ASTM D3175 | wt. % | | |
| Fixed Carbon by Difference | ASTM D3172 | wt. % | | |
| Sulfur | ASTM D4239 | wt. % | 0.007 | 0.007 |
| SO ₂ | Calculated | lb/mmbtu | | 0.016 |
| Net Cal. Value at Const. Pressure | ISO 1928 | GJ/tonne | | |
| Net Cal. Value at Const. Pressure | ISO 1928 | J/g | | |
| Gross Cal. Value at Const. Vol. | ASTM E711 | J/g | 20632 | 19368 |
| Gross Cal. Value at Const. Vol. | ASTM E711 | Btu/lb | 8871 | 8327 |
| Carbon | ASTM D5373 | wt. % | | |
| Hydrogen* | ASTM D5373 | wt. % | | |
| Nitrogen | ASTM D5373 | wt. % | | |
| Oxygen* | ASTM D3176 | wt. % | | |
| *Note: As received values do not include hydrogen and oxygen in the total moisture. | | | | |
| Chlorine | ASTM D6721 | mg/kg | 23 | 22 |
| Fluorine | ASTM D3761 | mg/kg | | |
| Mercury | ASTM D6722 | mg/kg | | |
| Bulk Density | ASTM E873 | lbs/ft ³ | | 42.60 |
| Fines (Less than 1/8") | TPT CH-P-06 | wt. % | | 0.17 |
| Durability Index | Kansas State | PDI | | 98.4 |
| Sample Above 1.50" | TPT CH-P-06 | wt. % | | 0.0 |
| Maximum Length (Single Pellet) | TPT CH-P-06 | inch | | 1.273 |
| Diameter, Range | TPT CH-P-05 | inch | 0.263 to | 0.268 |
| Diameter, Average | TPT CH-P-05 | inch | | 0.265 |
| Stated Bag Weight | TPT CH-P-01 | lbs | | 40.0 |
| Actual Bag Weight | TPT CH-P-01 | lbs | | 40.3 |

Comments