

March 30, 2005

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Report: 15460-32.02

Polymer Reinforcement Products Ltd.
580 Hardwick Street
Burnaby, B.C.,
Canada, V5G 1R4

Attention: Mr. Ralph Ulm

Dear Ralph:

RE: Brush Fire Simulation Tests on Polecrete Mounted Distribution Pole

Introduction

Polecrete Stabilizer is a polyurethane foam backfill product manufactured by BMK Corporation, intended for use in setting wood distribution and transmission poles. Powertech was contracted by Polymer Reinforcement Products Ltd. to witness the setting of two Class 5 distribution poles using the Polecrete Stabilizer material, and to subsequently perform simulated brush fire testing with the set poles to determine the effect on the Polecrete material.

Installation Conditions

The wood poles were installed on January 18th, 2005. At the time of the installation, the ambient temperature was approximately 5°C (40°F), and raining (100% RH). The soil was water saturated as evidenced by slow seepage of water into the excavated holes.

Due to the poor weather conditions, and at the request of the BMK representative, the Polecrete Stabilizer base materials were preheated in an oven at 30°C (85°F) for 30 minutes prior to the installation. The Polecrete Stabilizer was mixed on-site according to the method outlined in the BMK product literature, and poured around the wood pole base into the pre-excavated hole.

Test Conditions

Prior to performing the brush fire simulations, all loose dirt and debris was removed from the top of the Polecrete Stabilizer foam surrounding the wood pole, and then a layer of dried sand placed on top of the foam to produce a 1" cover depth of sand over the highest point in the Polecrete Stabilizer foam. This step was performed to produce a uniform cover of a standardized material, and to eliminate the heat consumption that evaporation of soil moisture would produce, thus lessening the heat input to the foam.

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The combustible material used to simulate the brush fire was bailed straw used for livestock feed. The straw had been stored indoors for two weeks prior to the tests and was dry.

Two brush fire simulation tests were performed sequentially on the same Polecrete set wood pole:

Test 1: Simulated Typical Brush Fire

Straw was piled around the pole base in a circle of approximately 5 ft in diameter and 6 in. depth. This condition was intended to simulate the typical brush fire conditions that would be encountered in a distribution or transmission right-of-way. Once ignited the fire burned with open flame for two minutes and smoldered for one additional minute.

Test 2: Simulated Severe Brush Fire

Straw was piled around the pole base in a circle of approximately 5 ft in diameter and 2 ft depth. This condition was intended to simulate a severe brush fire conditions that would be encountered in an un-maintained distribution or transmission right-of-way. Once ignited the fire burned with open flame for four minutes and smoldered for two additional minutes.

Test Results

Test 1: Simulated Typical Brush Fire

After the fire completed burning, there was surface singeing and soot staining of the wood pole from approximately 6 inches above the ground line down to the ground line. There was no indication of damage to the wood below where the top surface of the sand was located.

The Polecrete Stabilizer foam was uncovered and visually examined immediately after the fire completed burning. There were no visible changes to the appearance of the foam. Additionally, the sand at the foam level was cool to the touch and had not been appreciably heated by the fire.

Test 2: Simulated Severe Brush Fire

It should be noted that this test was performed on the same pole as Test 1, immediately after completion of the Test 1 examinations.

After the fire completed burning, there was charring of the wood pole surface ranging upwards from the ground line between 3 and 5 feet. Again, there was no indication of damage to the wood below where the top surface of the sand was located.

The Polecrete Stabilizer foam was uncovered and visually examined immediately after the fire completed burning. There were no visible changes to the appearance of the foam. Again, the sand at the foam level was cool to the touch and had not been appreciably heated by the fire.

NOTE: For your reference, a CD containing video documentation of the testing in DVD format is included with this report.

Conclusions

With a minimum 1 inch cover of dirt that is free from organic material (e.g. peat, wood fibre, etc.) the Polecrete Stabilizer foam will withstand typical brush fire conditions without any harmful effects. The test results also show that the wood pole will experience fire damage before the foam experiences any effects.

We hope that this report meets with your approval. If you have any questions or comments, please contact the undersigned.

Regards,



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