# Product Safety Labs

## PRODUCT

Wood's Rooting Compound

## STUDY TITLE

Physical and Chemical Characteristics: Dielectric Breakdown Voltage

## DATA REQUIREMENT

U.S. EPA Product Properties Test Guidelines, OPPTS 830.6321

## AUTHOR

Catherine Wo, Ph.D.

## STUDY COMPLETED ON

February 20, 2013

## PERFORMING LABORATORY

Product Safety Labs

## LABORATORY STUDY NUMBER

35136



**Product Safety Labs**
2394 US Highway 130
Dayton, NJ 08810
USA

T | 732-438-5100
F | 732-230-4209
psl@productsafetylabs.com
www.productsafetylabs.com

## STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

No claim of confidentiality, on any basis whatsoever, is made for any information contained in this document. I acknowledge that information not designated as within the scope of FIFRA sec. 10(d)(1)(A), (B), or (C) and which pertains to a registered or previously registered pesticide is not entitled to confidential treatment and may be released to the public, subject to the provisions regarding disclosure to multinational entities under FIFRA 10(g).

Submitter:_____ Date:_____

Name of Signer:_____

Name of Company: Earth Science Products Corp.

## GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

Wood's Rooting Compound

This study meets the requirements of 40 CFR Part 160: U.S. EPA (FIFRA), 1989. Specific information related to the characterization of the test substance as received and tested is the responsibility of the study Sponsor (see Test Substance section).

Study Director: Catherine Wo Date: Feb. 20, 2013

Name of Signer: Catherine Wo, PhD

Name of Company: Product Safety Labs

Sponsor:_____ Date:_____

Name of Signer: _____

Name of Company: Earth Science Products Corp.

Submitter:_____ Date:_____

Name of Signer: _____

Name of Company: Earth Science Products Corp.

## QUALITY ASSURANCE STATEMENT

The Product Safety Labs' Quality Assurance Unit has reviewed this final study report to assure the report accurately describes the methods and standard operating procedures, and that the reported results accurately reflect the raw data of the study.

QA activities for this study:

| QA Activity | Date Conducted | Date Findings Reported To Study Director And Management |
|---|---|---|
| Protocol review | June 21, 2012[1]; Jan 2, 2013 | June 21, 2012; Jan 2, 2013 |
| In-process inspection: *Determination of Voltage* | Dec 18, 2012 | Dec 18, 2012 |
| Raw data audit and Draft report review | Jan 2, 2013 | Jan 2, 2013 |

Final Report reviewed by:

Rhonda S. Krick

Feb 20, 2013

Rhonda S. Krick, BS.
Quality Assurance Auditor
Product Safety Labs

Date

[1] PSL's "generic" protocol used for this study was reviewed by the Quality Assurance group on this date.

## TABLE OF CONTENTS

## PHYSICAL AND CHEMICAL CHARACTERISTICS: DIELECTRIC BREAKDOWN VOLTAGE

| | |
|---|---|
| **PROTOCOL NO.:** | P828 |
| **AGENCY:** | EPA (FIFRA) |
| **STUDY NUMBER:** | 35136 |
| **SPONSOR:** | EARTH SCIENCE PRODUCTS CORP.<br>PO Box 327,<br>Wilsonville, Oregon 97070 |
| **TEST SUBSTANCE IDENTIFICATION:** | Wood's Rooting Compound<br>Lot #: 19 |
| **DATE RECEIVED:** | December 7, 2012 |
| **PSL REFERENCE NO.:** | 121207-1H |
| **STUDY INITIATION DATE:** | December 17, 2012 |
| **DATE OF TESTING:** | December 18, 2012 |
| **NOTEBOOK NO.:** | 12-288: pages 22-34B; 35-44 |

### 1. PURPOSE

The objective of this study was to determine the dielectric breakdown voltage of Wood's Rooting Compound in order to meet physical and chemical properties data requirements for product registration.

### 2. MATERIALS

#### A. Test Substance (see Section 6, Amendment 2)

The test substance, identified as Wood's Rooting Compound, Lot #: 19, was received on December 7, 2012 and was further identified with PSL Reference Number 121207-1H. The test substance was stored at room temperature. The test was carried out on the sample as received. Documentation of the methods of synthesis, fabrication, or derivation of the test substance is retained by the Sponsor.

The following information related to the characterization of the test substance was provided by the Sponsor unless otherwise noted:

Composition: Indole-3-Butric Acid – 1.03%
Napthalene Acetic Acid – 0.66%
Isopropyl Alcohol – 36.67%
Water – 61.64%

Physical Description: Light yellow liquid

pH: 3.61

Solubility: Soluble in water.

Stability: Test substance was expected to be stable for the duration of testing.

Expiration Date: October 17, 2014

## 3. PROCEDURE

The dielectric breakdown voltage of the test substance was determined by disk electrode using a Liquid Dielectric Test Set (Phenix Technologies) based on the procedures described in ASTM D877-02 (PSL SOP 1114) and OPPTS 830.6321. Prior to testing, the electrode gap was adjusted to the correct position. The test cell (ASTM D877, TC/DE) was filled with the test substance to cover the electrode then the cell was placed in the chamber on the cradle contacts of the unit and the lid closed. The unit was turned on and a ramp rate of 3000 volts per second was selected. The unit automatically raised the voltage to the desired rate per second until failure occurred. The breakdown voltage was recorded. Five measurements were carried out on the sample and the average calculated. The average of the five breakdowns was considered as the breakdown voltage.

## 4. STUDY CONDUCT

This study was conducted at Product Safety Lab's (Product Safety Labs) test facility at 2394 US Highway 130, Dayton, New Jersey 08810. The Study Director for this study was Catherine Wo, PhD. The primary chemist for this study was Carol Ouyang, MS. This study was conducted to comply with the Good Laboratory Practice (GLP) regulations as defined in:

- 40 CFR 160: U.S. EPA GLP Standards: Pesticide Programs (FIFRA), 1989

and based on the following testing guideline:

- U.S. EPA Product Properties Test Guidelines, OPPTS 830.6321

## 5. QUALITY ASSURANCE

The final report was audited for agreement with the raw data records and for compliance with the protocol, Product Safety Labs Standard Operating Procedures and appropriate Good Laboratory Practice Standards. Dates of inspection and audits performed during the study and the dates of reporting of the inspection and audit findings to the Study Director and Facility Management are presented in the Quality Assurance Statement.

## 6. AMENDMENTS TO THE PROTOCOL

1) At the Sponsor's request, the Sponsor contact was changed from Irene Boone to Molly Hickman.

2) At the Sponsor's request, the pH was changed from 4.73 to 3.61 (1% by mass).

## 7. DEVIATIONS FROM THE FINAL PROTOCOL

None.

## 8. FINAL REPORT AND RECORDS TO BE MAINTAINED

Information on equipment maintenance and calibration, storage, usage, and disposition of the test substance, and all other records that would demonstrate adherence to the protocol will be maintained. Facility records which are not specific to the subject study will be maintained by the testing facility and archived according to PSL SOP.

The original, signed final report will be forwarded to the Sponsor. A copy of this signed report, together with the protocol and all raw data generated at Product Safety Labs, is maintained in the Product Safety Labs Archives. PSL will maintain these records for a period of at least five years. After this time, the Sponsor will be offered the opportunity to take possession of the records or may request continued archiving by PSL.

## 9. RESULTS

The test results are presented in Table 1.

## SIGNATURE

Wood's Rooting Compound

I, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected during the study.

Catherine Wo

Catherine Wo, Ph.D.
Study Director
Product Safety Labs

Feb. 20. 2013

Date

## TABLE 1: RESULTS FOR DETERMINATION OF DIELECTRIC BREAKDOWN VOLTAGE

| Replicate # | Weight of Sample (g) | Breakdown Voltage Observed (KV) | Average KV |
|---|---|---|---|
| 1 | 61.6 | 2.8 | 2.8 |
| 2 | | 2.8 | |
| 3 | | 2.8 | |
| 4 | | 2.9 | |
| 5 | | 2.8 | |