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Product Safety Labs

STUDY TITLE

K32:
Physical and Chemical Characteristics: Density/Relative Density

DATA REQUIREMENT

U.S. EPA Product Properties Test Guidelines, OPPTS 830.7300

AUTHOR

Catherine Wo, PhD

STUDY COMPLETED ON

May 9, 2017

PERFORMING LABORATORY

Product Safety Labs

LABORATORY STUDY NUMBER

44568

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GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

K32

This study meets the requirements of U.S. EPA GLP (TSCA): 40 CFR Part 792, 1989 and OECD Principles of GLP (as revised in 1997): ENV/MC/CHEM(98)17, OECD, Paris, 1998. 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: May 9, 2017

Name of Signer: Catherine Wo, PhD

Name of Company: Product Safety Labs

Sponsor: Koch Agronomic Services Date: 5/9/2017

Name of Signer: Eric A. Searcy

Name of Company: Koch Agronomic Services

Submitter: Eric A. Searcy Date: 5/9/2017

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Name of Company: Koch Agronomic Services

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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	Performed By	Date Conducted	Date Findings Reported To Study Director And Management
Protocol review	R. Krick; M. Zakrzewski	Oct 22, 2012[1]; Jan 9, 2017	Oct 22, 2012; Jan 9, 2017
In-process inspection: *Determination of density*	M. Hendrickson	Dec 27, 2016	Dec 27, 2016
Raw data audit	M. Zakrzewski	Jan 9, 2017	Jan 9, 2017
Draft report review	M. Zakrzewski	Jan 9, 2017	Jan 9, 2017

Final report reviewed by:

Maryann Zakrzewski
Quality Assurance Auditor
Product Safety Labs

May 9, 2017
Date

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

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K32: PHYSICAL AND CHEMICAL CHARACTERISTICS: DENSITY/RELATIVE DENSITY

PROTOCOL NO.:	P801
STUDY NUMBER:	44568
SPONSOR:	Koch Agronomic Services 2883 Miller Rd. Decatur, GA 30035
TEST SUBSTANCE IDENTIFICATION:	K32 Lot #: 55700-30-13
DATE RECEIVED:	December 1, 2016
PSL REFERENCE NO.:	161201-2R
STUDY INITIATION DATE:	December 23, 2016
DATE OF TESTING:	December 27, 2016
NOTEBOOK NO.:	44568: pages 1-19

1. PURPOSE

The objective of this study was to determine the density/relative density of K32 in order to meet physical and chemical properties data requirements for product registration.

2. MATERIALS

A. Test Substance

The test substance, identified as K32, Lot #: 55700-30-13, was received on December 1, 2016, and was further identified with PSL Reference Number 161201-2R. The test substance was stored frozen. The test was carried out on the test substance 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:

Composition: K32 - 97.6%
Water - 2.4%, CAS #7732-18-5

Physical Description: Off-white to pale yellowish gel

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

Expiration Date: Not applicable

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3. PROCEDURES

A. Density by Specific Gravity Bottle

The density of the test substance was determined by methodology appropriate for its physical state according to CIPAC MT-3, ASTM D891-95, OPPTS 830.7300, EEC Test Method A3, and OECD TG 109.

The weight of a dry 50 mL measuring cylinder (Kimax) with the stopper in place was recorded. The bottle was then filled with the softened test substance while still warm (the test substance was softened at around 58°C in an oven for 2 hours prior to testing). Any excess sample was cleaned from the wall of the cylinder using a spatula and with stopper in place, was immersed in the water bath for approximately 35 minutes at a temperature of 20°C. The cylinder was then removed from the water bath and allowed to rest at room temperature for several minutes, and then weighed. This procedure was conducted once with water and twice with the test substance to obtain two measurements.

The density of the test substance is the ratio of its mass and its volume determined at 20°C, expressed in grams per milliliter. The relative density of the test substance is the ratio obtained by dividing the weight of the test substance by the weight of the water at 20°C.

4. STATISTICAL ANALYSIS

Statistical analysis was limited to the calculation of the mean and standard deviation.

5. STUDY CONDUCT

This study was conducted at Product Safety Labs' (PSL) 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:

- U.S. EPA GLP: Toxic Substances Control Act (TSCA): 40 CFR Part 792, 1989
- OECD Principles of GLP (as revised in 1997): ENV/MC/CHEM(98)17, OECD, Paris, 1998

and based on the following testing guideline:

- U.S. EPA Product Properties Test Guidelines, OPPTS 830.7300

6. 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 inspections 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.

7. AMENDMENTS TO THE PROTOCOL

None.

8. DEVIATIONS FROM THE PROTOCOL

None.

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9. 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 PSL, is maintained in the PSL 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.

10. RESULTS AND CONCLUSIONS

A summary of test results is presented in Table 1. Individual results are presented in Tables 2.

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SIGNATURE

K32

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, PhD
Study Director
Product Safety Labs

May 9, 2017
Date

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TABLE 1: SUMMARY OF RESULTS

Test	Result
Density @ 20°C (g/mL)	1.170

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TABLE 2: MEASUREMENTS FOR DENSITY BY SPECIFIC GRAVITY BOTTLE

Weight		Water	Test Solution 1	Test Solution 2
Empty[1] (g)		96.85	86.07	91.47
Filled[2] (g)		116.81	109.45	116.04
Filled-Empty (g)	Difference	19.96	23.38	24.57
Filled Volume (mL)		20.0	20.0	21.0
Density (g/mL @ 20°C)		0.998	1.169	1.170
Density (g/mL, averaged)		-	1.170	
Relative density (@ 20°C)		-	1.171	1.172
Relative density (averaged)		-	1.172	
Temperature observed (°C)		20	20	20
Length of equilibrium time (min)		35	35	35

[1] Empty = weight of empty cylinder + stopper

[2] Filled = weight of empty cylinder + stopper + weight of substance (water or test substance)