



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

**MEMORANDUM**

**SUBJECT:** Product Chemistry Review for FIFRA Section 3 Registrations of Raw Linseed Oil Technical, containing 99.7% Linseed Oil, CROPCOAT, containing 70.0% Linseed Oil and CROPCOAT CX1098, containing 54.0% Linseed Oil

**Action Code Case Number:** 00330078 (MP), 00330080 (EP), and 00330083 (EP)  
**E Submission Number:** 68639 (MP), 68642 (EP), and 68644 (EP)  
**EPA File Symbol:** 94473-R (MP), 94473-E (EP), 94473-G (EP)  
**PC Code:** 031603  
**CAS Number:** 8001-26-1  
**AI Tolerance/Exemption:** 40 CFR 180.950(c)  
**MRID Numbers:** See Bibliography of Studies Section  
**PRIA Code:** B590

**FROM:** Yongqi Li, Biologist **YONGQI LI** Digitally signed by YONGQI LI  
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Biopesticides & Pollution Prevention Division (7511M)

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Risk Assessment Branch Date: 2022.11.29  
Biopesticides & Pollution Prevention Division (7511M) 09:19:36 -05'00'

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SHANNON BORGES  
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**TO:** Alex Horansky, Risk Manager  
Biochemical Pesticides Branch  
Biopesticides & Pollution Prevention Division (7511M)

\*\*\*Contains Confidential Business Information (CBI)\*\*\*

**ACTION REQUESTED**

Pyxis Regulatory Consulting requests registration of Raw Linseed Oil Technical (EPA File Symbol: 94473-R), a manufacturing-use product (MP) containing the new active ingredient, linseed oil (99.7%), and two end-use products (EPs), CROPCOAT (EPA File Symbol: 94473-E) and CROPCOAT CX1098 (EPA File Symbol: 94473-G), containing 70.0% and 54.0% linseed oil, respectively.

The MP is proposed to be used for formulating EPs only. In support of the application for registration for the MP, the applicant submitted a proposed product label dated 02-14-2022, basic Confidential Statements of Formula (CSFs) dated 08-26-2021, a data matrix dated 10-08-2021, and product chemistry, human health and ecological assessment data and information.

The two proposed EPs are intended to be used as insecticides/miticides. In support of the application for registration for these two EPs, the applicant submitted proposed product labels dated 10-11-2021, CSFs dated 06-21-2021 and 07-09-2021, data matrices dated 10-08-2021, and product chemistry and human health assessment data and information. This memo contains a review of the product chemistry data only, and human health and ecological assessments are in separate memos.

## **EXECUTIVE SUMMARY**

The Biopesticides and Pollution Prevention Division (BPPD) has reviewed the product chemistry data submitted for the registration of Raw Linseed Oil Technical (EPA File Symbol: 94473-R), a MP containing the new active ingredient, linseed oil (99.7%), and two EPs, CROPCOAT (EPA File Symbol: 94473-E) and CROPCOAT CX1098 (EPA File Symbol: 94473-G), containing 70.0% and 54.0% linseed oil, respectively. All product chemistry data requirements have been satisfied. The EPs are formulated using the proposed MP. The EPs are proposed insecticides/miticides for the treatment of agricultural crops, turf, and ornamental plants. Linseed oil has a non-toxic mode of action and can effectively smother certain insects or mites in many life stages and reduce their rate of population development, which in turn reduces crop damage and protects crop yield.

Product chemistry data deficiencies for the MP were previously identified by the Risk Assessment Branch (RAB) (US EPA, 2022). These deficiencies have been satisfactorily addressed with updated data and information. The updated data and information can be found in the newly submitted MRID numbers (51797001 – 51797003).

### **1.0 Introduction**

#### **1.1 Biopesticide Use Pattern**

The MP is only for use in manufacturing end-use products.

CROPCOAT and CROPCOAT CX1098 are to be applied to agricultural crops, turf, and ornamental plants as insecticides/miticides. The EPs can be applied using non-agitating or agitating sprayer tanks. Sufficient water volume must be used to obtain thorough uniform coverage of all plant surfaces, and all leaf and fruit surfaces must be thoroughly treated to the point of runoff. All mixers, loaders, applicators and other handlers must wear personal protective equipment (PPE: long-sleeved shirt and long pants, chemical-resistant gloves and shoes plus socks). Based on the PPE requirement, the Risk Assessment Branch (RAB) has assumed that the product is for commercial use only. The maximum application rate is 17.3 lb. active ingredient/A.

## 2.0 Product Chemistry

### A. Active Ingredient Identity and Characterization

Linseed oil, also known as flaxseed oil, is a colorless to yellowish oil obtained from the dried, ripened seeds of the flax plant (*Linum usitatissimum*). Raw Linseed Oil Technical containing 99.7% linseed oil is [REDACTED]

[REDACTED] Linseed oil has a non-toxic mode of action and can effectively smother certain insects or mites in many life stages and reduce their rate of population development, which in turn reduces crop damage and protects crop yield. Linseed oil has a long history of use in consumer products, including dietary supplements and cosmetic products. Linseed oil is also often blended with combinations of other oils, resins or solvents as an impregnator, drying oil finish or varnish in wood finishing, as a pigment binder in oil paints, as a plasticizer and hardener in putty, and in the manufacture of linoleum. Linseed oil is on the Agency's minimum risk pesticides list (40 CFR 152.25(f)) and is approved for use in pesticide products as an inert ingredient (food, non-food, and fragrance uses).

### B. Active Ingredient/Manufacturing-Use Product

Raw Linseed Oil Technical contains 99.7% linseed oil. All product chemistry data requirements have been satisfied for the active ingredient/MP. Both guideline and non-guideline studies were submitted to satisfy the data requirements. The technical grade of the active ingredient (TGAI) is equivalent to the MP. Product chemistry and physical/chemical property data are provided in Tables 1 and 2, respectively. Refer to the data evaluation record (DER) for additional information.

Table 1: Product Chemistry Data for Raw Linseed Oil Technical (99.7% Linseed Oil) (40 CFR § 158.2030)			
OSCP Guideline	Data Requirement	Results	MRID
880.1100 830.1550	Product Identity and Composition	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475201
880.1200 830.1650	Description of Starting Materials and Formulation Process	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475201, 51797001
880.1400 830.1670	Discussion of Formation of Impurities	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475201, 51797001
830.1700	Preliminary Analysis	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475202
830.1750	Certified Limits	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475201
830.1800	Enforcement Analytical Method	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475203

**Table 2. Physical/Chemical Properties of Raw Linseed Oil Technical (99.7% Linseed Oil) (40 CFR § 158.2030)**

<b>OCSP Guideline</b>	<b>Property</b>	<b>Description of Result</b>	<b>Reference/MRID</b>
830.6302	Color	[REDACTED]	51475204
830.6303	Physical state	[REDACTED]	51475204
830.6304	Odor	[REDACTED]	51475204
830.6313	Stability to normal and elevated temperatures, metals, and metal ions	[REDACTED] [REDACTED]	51475208, 51475210
830.6315	Flammability	[REDACTED]	51475204
830.6317	Storage stability	[REDACTED] [REDACTED]	51475208
830.6319	Miscibility	[REDACTED]	51475210
830.6320	Corrosion characteristics	[REDACTED] [REDACTED]	51475208
830.7000,	pH	[REDACTED] [REDACTED]	51475204
830.7050	UV/visible light absorption	[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]	51475204
830.7100	Viscosity	[REDACTED] [REDACTED]	51475204
830.7200	Melting point / melting range	[REDACTED]	51475210
830.7220	Boiling point / boiling range	[REDACTED]	51475204
830.7300	Relative density	[REDACTED]	51475204
830.7520	Particle size, fiber length, & diameter distribution	[REDACTED]	51475210

**Table 2. Physical/Chemical Properties of Raw Linseed Oil Technical (99.7% Linseed Oil) (40 CFR § 158.2030)**

OCSPP Guideline	Property	Description of Result	Reference/MRID
830.7550, 830.7560, 830.7570	Partition coefficient	[REDACTED]	51475205
830.7840	Solubility in water	[REDACTED]	51475206
830.7950	Vapor pressure	[REDACTED]	51475209

### C. End-Use Product, CROPCOAT (70.0% Linseed Oil)

All product chemistry data requirements have been satisfied for the EP. To satisfy these requirements, both guideline and non-guideline studies were submitted. All inert ingredients are approved for the proposed use pattern. Product chemistry and physical/chemical property data are provided in Tables 3 and 4, respectively. Refer to the DER for additional information.

**Table 3: Product Chemistry Data for CROPCOAT (70.0% Linseed Oil) (40 CFR § 158.2030)**

OCSPP Guideline	Data Requirement	Results	MRID
880.1100 830.1550	Product Identity and Composition	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475401
880.1200 830.1650	Description of Starting Materials and Formulation Process	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475401
880.1400 830.1670	Discussion of Formation of Impurities	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475401
830.1700	Preliminary Analysis	Not required: Data submitted for MP pending registration.	
830.1750	Certified Limits	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475401
830.1800	Enforcement Analytical Method	Not required: Data submitted for MP pending registration.	

**Table 4. Physical/Chemical Properties of CROPCOAT (70.0% Linseed Oil) (40 CFR § 158.2030)**

OCSPP Guideline	Property	Description of Result	Reference/MRID
830.6302	Color	[REDACTED]	51475403
830.6303	Physical state	[REDACTED]	51475403
830.6304	Odor	[REDACTED]	51475403
830.6315	Flammability	[REDACTED]	51475403

<b>Table 4. Physical/Chemical Properties of CROPCOAT (70.0% Linseed Oil) (40 CFR § 158.2030)</b>			
<b>OCSPP Guideline</b>	<b>Property</b>	<b>Description of Result</b>	<b>Reference/MRID</b>
830.6317	Storage stability	[REDACTED]	51475404
830.6319	Miscibility	[REDACTED]	51475405
830.6320	Corrosion characteristics	[REDACTED]	51475404
830.7000	pH	[REDACTED]	51475403
830.7100	Viscosity	[REDACTED]	51475403
830.7300	Density	[REDACTED]	51475403

#### **D. End-Use Product, CROPCOAT CX1098 (54.0% Linseed Oil)**

All product chemistry data requirements have been satisfied for the EP. To satisfy these requirements, both guideline and non-guideline studies were submitted. All inert ingredients are approved for the proposed use pattern. Product chemistry and physical/chemical property data are provided in Tables 5 and 6, respectively. Refer to the DER for additional information.

<b>Table 5: Product Chemistry Data for CROPCOAT CX1098 (54.0% Linseed Oil) (40 CFR § 158.2030)</b>			
<b>OCSPP Guideline</b>	<b>Data Requirement</b>	<b>Results</b>	<b>MRID</b>
880.1100 830.1550	Product Identity and Composition	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475301
880.1200 830.1650	Description of Starting Materials and Formulation Process	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475301
880.1400 830.1670	Discussion of Formation of Impurities	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475301
830.1700	Preliminary Analysis	Not required: Data submitted for MP pending registration.	
830.1750	Certified Limits	Submitted data satisfy the requirement. CBI ACCEPTABLE/GUIDELINE	51475301
830.1800	Enforcement Analytical Method	Not required: Data submitted for MP pending registration.	

<b>Table 6. Physical/Chemical Properties of CROPCOAT CX1098 (54.0% Linseed Oil) (40 CFR § 158.2030)</b>			
<b>OCSPP Guideline</b>	<b>Property</b>	<b>Description of Result</b>	<b>Reference/MRID</b>
830.6302	Color	[REDACTED]	51475303
830.6303	Physical state	[REDACTED]	51475303
830.6304	Odor	[REDACTED]	51475303
830.6315	Flammability	[REDACTED]	51475303
830.6317	Storage stability	[REDACTED]	51475304
830.6319	Miscibility	[REDACTED]	51475305
830.6320	Corrosion characteristics	[REDACTED]	51475304
830.7000	pH	[REDACTED] [REDACTED]	51475303
830.7100	Viscosity	[REDACTED] [REDACTED]	51475303
830.7300	Density	[REDACTED]	51475303

## RECOMMENDATIONS AND CONCLUSIONS

### Note to Risk Manager:

Linseed oil is combustible, so heat, sparks, and other ignition sources should be avoided. Linseed oil can also self-combust without outside heat or ignition sources. When linseed oil is exposed to air, it reacts with the oxygen molecules and creates heat. Rags and other flammable materials containing linseed oil may spontaneously ignite if enough heat accumulates. Appropriate precautionary language should be added to the label.

### MP (94473-R):

1. The basic CSF dated 08-26-2021 and the label dated 02-14-2022 are ACCEPTABLE.
2. All product chemistry data requirements have been satisfied at this time.

### EP (94473-E, CROPCOAT):

1. The basic CSF dated 06-21-2021 and the label 10-11-2021 are ACCEPTABLE.

2. All product chemistry data requirements have been satisfied at this time.

**EP (94473-G, CROPCOAT CX1098):**

1. The basic CSF dated 07-09-2021 and the label 10-11-2021 are ACCEPTABLE.

2. All product chemistry data requirements have been satisfied at this time.

**BIBLIOGRAPHY OF STUDIES**

**MP (94473-R):**

MRID 51475201: ACCEPTABLE

MRID 51475203: ACCEPTABLE

MRID 51475205: ACCEPTABLE

MRID 51475208: ACCEPTABLE

MRID 51475210: ACCEPTABLE

MRID 51475202: ACCEPTABLE

MRID 51475204: ACCEPTABLE

MRID 51475206: ACCEPTABLE

MRID 51475209: ACCEPTABLE

MRID 51797001: ACCEPTABLE

**EP (94473-E, CROPCOAT):**

MRID 51475401: ACCEPTABLE

MRID 51475404: ACCEPTABLE

MRID 51475403: ACCEPTABLE

MRID 51475405: ACCEPTABLE

**EP (94473-G, CROPCOAT CX1098):**

MRID 51475301: ACCEPTABLE

MRID 51475304: ACCEPTABLE

MRID 51475303: ACCEPTABLE

MRID 51475305: ACCEPTABLE

**REFERENCES**

US EPA (2022). Biochemical pesticide tech screen-chemistry report for 94473-R. Y. Li thru A. Gonzales and S. Borges to A. Horansky. January 19, 2022.