



Arbor Organic Technologies

Organic Emulsifier Blend 60

Product Number: A60014

INCI Name: Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar) Gum



Technical Dossier



Arbor Organic Technologies

Organic Emulsifier Blend 60

Product Number: A60014

INCI Name: Oryza Sativa (Rice) Bran Extract & Cyamopsis
Tetragonoloba (Guar) Gum

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Organic Emulsifier Blend 60

Technical Data Sheet

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Background

Today's consumer is concerned about synthetic ingredients in cosmetic products they use every day. Due to growing consumer awareness of sustainability and vegan lifestyle, all natural and plant-based products are on demand, while most functional ingredients in cosmetic formulations are synthetically derived. At Arbor Organic Technologies, we have developed a USDA-NOP certified organic emulsifier to deliver the solution from nature to the personal care industry. **Organic Emulsifier Blend 60** combines the natural emulsifying properties of rice bran with guar gum to stabilize emulsions for elegant formulations.

Traditionally, organic emulsifiers lack the ability to deliver elegant formulations. Due to the fact that emulsification is a natural process, nature has the solution for cosmetic formulators. Nature produces its own emulsifiers, which allow both oil and water-soluble biomolecules to coexist as complex systems in plants. Specifically, the combination of organic rice bran and guar gum form a natural emulsifier ideal for oil-in-water systems. **Organic Emulsifier Blend 60** is developed through a proprietary manufacturing process to bring elegance in organic formulations.

Science

Rice bran is a byproduct of rice milling, and is rich in protein, carbohydrates, and fatty acid content. Rice bran naturally contains lipase, an enzyme that hydrolyzes lipids into free fatty acids (FFA) leading to rancidity in final products.¹ If rice bran is stabilized, immediately after milling, rancidity is prevented. Some of the common methods used for lipase deactivation in rice bran are high temperature treatments and chemical processing. These methods are known to improve the shelf life of rice bran products but also they can significantly lower the nutrient content and purity of ingredients.²

Arbor Organic Technologies has developed a proprietary method of three-dimensional particle assembly designed with stabilized, pure rice bran proteins and lipids combined in guar gum, which help create an exceptional certified organic emulsifier ideal for a variety of oil-in-water systems.

Code Number: A60014

INCI Name: Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar) Gum

INCI Status: Conforms

REACH Status: Complies

CAS Number: 90106-37-9 & 9000-30-0

EINECS Number: N/A & 232-536-8

Origin: Botanical

Processing:

GMO Free

No Ethoxylation

No Irradiation

No Sulphonation

Additives:

Preservatives: None

Antioxidants: None

Other additives: None

Solvents Used: N/A

Appearance: Light Beige to Tan Free Flowing Powder

Soluble/ Miscible: Water Dispersible

Microbial Count: <100 CFU/g,
No Pathogens

Suggested Use Levels: 1.0 - 4.0%

Suggested Applications:

Primary Emulsification, Improves

Sensory Attributes, Pigment Dispersion

Benefits of Organic Emulsifier Blend 60:

- Stabilizes Emulsions
- Enhances Aesthetics of Formulations
- Great for Oil-in-Water Systems
- USDA-NOP Certified



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This method combines only physical processes including wet extrusion and cryogenic milling to avoid the use of harsh chemicals or denaturing high temperatures preventing the loss of natural emulsifying properties of rice bran.

Organic rice bran is stabilized using a wet extrusion process, carried out in high moisture, a low-temperature system in the presence of amylase, an enzyme capable of digesting starches. The high moisture environment helps gelatinize carbohydrates of rice bran allowing the amylase enzymes to selectively digest the extra starch particles leaving out a high content of lipids and proteins. Then, protein and lipid content is determined prior to the addition of organic guar gum powder in the micro-milling process. Derived from *Cyamopsis tetragonolobus*, guar gum mainly functions in the water phase of an emulsion by naturally binding with water molecules to improve viscosity and texture of formulations. The cryogenic miller allows us to design the ideal microparticles composed of a balanced amount of dehydrated lipophilic and hydrophilic components necessary for stable emulsification. As a result, the three-dimensional design of rice bran and guar gum microparticles encourages a stable and balanced affinity to both oil and water molecules in systems with a 20% lipid load. Dehydrated components of microparticles hydrate immediately once mixed in oil and water phases of emulsions creating homogenous, smooth creams and lotions. **Organic Emulsifier Blend 60** is a USDA certified organic emulsifier composed of selectively assembled microparticles that exhibits a natural affinity to both oil and water molecules allowing formulators to create stable emulsions.

Benefits

The physical texture of a formula offers the immediate perception of a cosmetic product. A formulation that glides smoothly on the skin elicits positive emotions for the product. However, organic cosmetic regulations challenge formulators when creating organic finished products. Arbor Organic Technologies changes the perspectives on organic cosmetic formulations. Designed with the latest technology and quality ingredients, **Organic Emulsifier Blend 60** is able to establish purely luxurious, stable emulsions that deliver multifunctional benefits all in one. We combine the efficacy from nature with our green and clean technology. Forming an easy to use, all-in-one emulsifier that breaks the challenges in the organic cosmetic marketplace. **Organic Emulsifier Blend 60** is ideal for oil-in-water emulsions to help form a variety of textures involving gels, creams, and lotions. This product not only elevates the sensory properties of formulations but also adds pigment dispersion and moisturization benefits to organic cosmetic products.

Efficacy

Emulsion Study

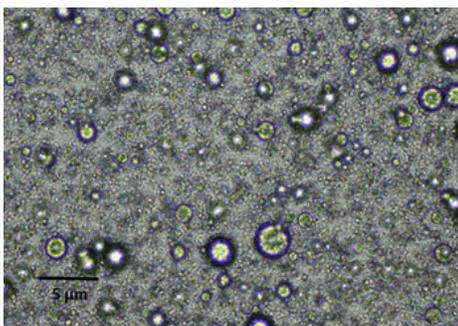


Figure 1. Emulsion with **Organic Emulsifier Blend 60** (magnification 400x)

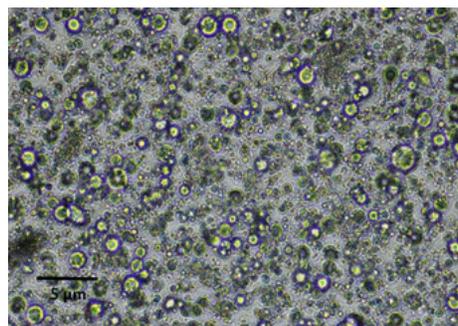


Figure 2. Emulsion with Rice Emulsifier and Guar Gum (magnification 400x)

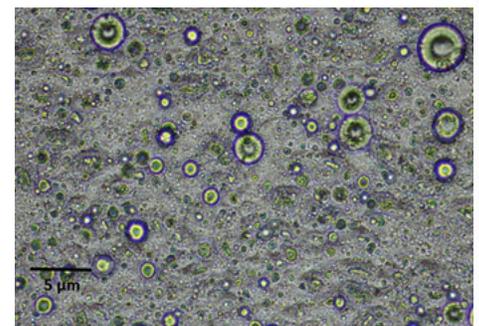


Figure 3. Emulsion with Cosmowax P (magnification 400x)

An emulsification study was performed to determine the ability of **Organic Emulsifier Blend 60** to form stable emulsions compared to a generic non-organic emulsifier and organic rice emulsifier blend with guar gum. Generally, a good emulsion lacks clumps or crystals and contains small and evenly dispersed micelles. Clumps, crystals, and agglomerates are signs of unstable emulsions that are prone to phase separation. As shown in Figure 1, the emulsion created with **Organic Emulsifier Blend 60** contains various small size micelles evenly dispersed throughout the emulsion. Figure 2, represents an emulsion made with a standard organic rice emulsifier and guar gum, which displays a good amount of small size micelles, however, crystals and agglomerates are also present.



Organic Emulsifier Blend 60

Technical Data Sheet

Arbor Organic Technologies

In-Vivo Sensory Analysis

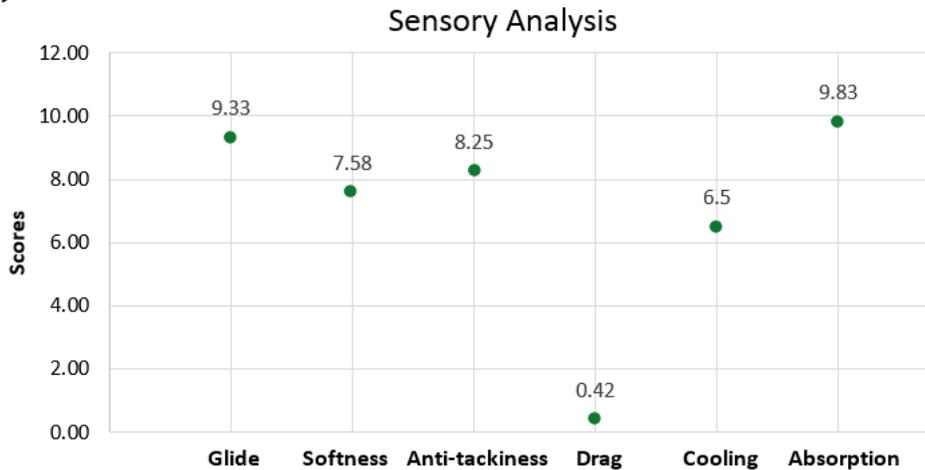


Figure 4. Average Skin Sensory Properties of 3% Organic Emulsifier Blend 60 Lotion.

A sensory analysis study was performed with **Organic Emulsifier Blend 60** in an organic lotion to determine its physical properties in skin care applications. 12 panelists were asked to apply a small amount of lotion containing 3% **Organic Emulsifier Blend 60** onto the volar arm area. This analysis ranked the glide, cooling, and dragging properties on a scale of 0-10. After 60 seconds, the panelists assessed softness, anti-tackiness, and absorption. As shown by Figure 4, the average scores for immediate skin properties are 9.33, 6.5, and 0.42 for glide, cooling, and drag. 3% **Organic Emulsifier Blend 60** in the organic lotion delivered a gliding and cooling sensation with minimal to no drag when tested on the volar arms. After 60 seconds, average scores for softness, anti-tackiness, and absorption are 7.58, 8.25, and 9.83. These results show that lotion containing **Organic Emulsifier Blend 60** is able to absorb quickly while enhancing the softness and smoothness of the skin.

Compatibilities/Incompatibilities Data

Compatibilities of Organic Emulsifier Blend 60
Ethanol (up to 15%)
Glycols
Anionic/Amphoteric Surfactants
Electrolytes (monovalent and divalent)
Salicylates
Cationic Surfactants

Table 1. Compatibilities

As shown in Table 1, **Organic Emulsifier Blend 60** is compatible with ethanol, glycols, surfactants, electrolytes, salicylates, and even cationic surfactants. No incompatibilities concerning organic formulations have been determined.

References

1. Mian N. Riaz, et al. Comparison of Different Methods for Rice Bran Stabilization and Their Impact on Oil Extraction and Nutrient Destruction, Cereal Foods World, 2010 AACC International, Inc.
2. Jeon, H., Lee, I., Han, Y., Jeong, H., Park, H., Jung, J., & Rhee, J. (2017). Physicochemical Characteristics of Powder from Cryogenic Grinding of Aronia, Grapefruit, Black Bean, and Germinated Brown Rice. Microbiology and Biotechnology Letters, 45(4), 291-298. doi:10.4014/mbl.1712.12014

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SPECIFICATION

Product Name: Organic Emulsifier Blend 60
Code Number: A60014
CAS #'s: 90106-37-9 & 9000-30-0
EINECS #'s: N/A & 232-536-8
INCI Name: Oryza Sativa (Rice) Bran Extract⁽⁺⁾ & Cyamopsis Tetragonoloba (Guar) Gum⁽⁺⁾
Status: Conforms

Specification	Parameter
Appearance	Free Flowing Powder
Color	Light Beige to Tan
Odor	Characteristic
pH (5% in Water)	4.5 – 7.5
Loss on Drying (1g-1hr-105°C)	15.00% Maximum
Microbial Content	< 200 CFU/g; No pathogens
Yeast & Mold	< 200 CFU/g
Gram Negative Bacteria	0 CFU/g

(+) Organic Plant Matter

- Product may not meet Microbiological specification after initial use.

Lot to lot variation may exist beyond our control due to seasonal weather and resulting crop variations in our supply of the natural plant materials.

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Compositional Breakdown

Organic Emulsifier Blend 60

Code: A60014

Compositional Breakdown:

Ingredient	%
Oryza Sativa (Rice) Bran Extract	60.00
Cyamopsis Tetragonoloba (Guar) Gum	40.00

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This is to certify that Organic Emulsifier Blend 60 does not contain, neither directly nor through cross contamination, any of the 26 allergenic flavors or fragrances (Gas Chromatography-Mass Spectrometer Coupled):

ALLERGENS listed in Annex III of EU Cosmetic Regulation(EC) No. 1223/2009 amending EU Directive 2003/15/EC		
INCI NAME	CAS NUMBER	Limit (ppm)
Alpha-IsoMethyl Ionone	127-51-5	< 0.02
Amyl Cinnamal	122-40-7	< 0.10
Anise Alcohol	105-13-5	< 0.00
Benzyl Alcohol	100-51-69	< 0.01
Benzyl Benzoate	120-51-4	< 0.09
Benzyl Cinnamate	103-41-3	< 0.30
Benzyl Salicylate	118-58-1	< 0.06
Butylphenyl Methylpropional	80-54-6	< 0.50
Cinnamal	104-55-2	< 0.01
Cinnamyl Alcohol	104-54-1	< 0.30
Citral	5392-40-5	< 1.00
Citronellol	106-22-9	< 1.00
Coumarin	91-64-5	< 0.00
Eugenol	97-53-0	< 0.70
Farnesol	4602-84-0	< 0.04
Geraniol	106-24-1	< 0.08
Hexyl Cinnamal	101-86-0	< 0.40
Hydroxycitronellal	107-75-5	< 1.00
Hydroxymethylpentyl 3-Cyclohexene carboxaldehyde	31906-04-4	< 0.00
Isoeugenol	97-54-1	< 0.06
Limonene	5989-27-5	< 0.05
Linalool	78-70-6	< 0.00
Methyl 2 Octynoate	111-12-6	< 0.20
Evernia prunastri	90028-68-5	< 0.00
Evernia furfuracea	90028-67-4	< 0.00
Amylcinnamyl Alcohol	101-85-9	< 1.00

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Arbor Organic Technologies

Dermal and Ocular Irritation Tests

107 Technology Drive, Lincolnton, NC 28092 • info@arbor-organics.com
Phone: +1-704-276-7100 • Fax: +1-704-276-7101

Sample: Organic Emulsifier Blend 60

Code: A60014

CAS #: 90106-37-9 & 9000-30-0

Test Request Form/Submission #: 4948

Lot #: NC190121-E

Sponsor: *Arbor Organic Technologies, LLC; 107 Technology Drive Lincolnton, NC 28092*

Study Director: *Maureen Danaher*

Principle Investigator: *Jennifer Goodman*

Test Performed:

In Vitro EpiDerm™ Dermal Irritation Test (EPI-200-SIT)

EpiOcular™ Eye Irritation Test (OCL-200-EIT)

SUMMARY

In vitro dermal and ocular irritation studies were conducted to evaluate whether **Organic Emulsifier Blend 60** would induce dermal or ocular irritation in the EpiDerm™ and EpiOcular™ model assays.

The product was tested according to the manufacture's protocol. The test article solution was found to be **non-irritating**. Reconstructed human epidermis and cornea epithelial model were incubated in growth media overnight to allow for tissue equilibration after shipping from MatTek Corporation, Ashland, MA. Test substances were applied to the tissue inserts and incubated for 60 minutes for liquid and solid substances in the EpiDerm™ assay and 30 minutes for liquid substances and 90 minutes for solid substances in the EpiOcular™ assay at 37°C, 5% CO₂, and 95% relative humidity (RH). Tissue inserts were thoroughly washed and transferred to fresh plates with growth media. After post substance dosing incubation is complete, the cell viability test begins. Cell viability is measured by dehydrogenase conversion of MTT [(3-4,5-dimethyl thiazole 2-y)], present in the cell mitochondria, into blue formazan salt that is measured after extraction from the tissue. The irritation potential of the test chemical is dictated by the reduction in tissue viability of exposed tissues compared to the negative control.

Under the conditions of this assay, the test article was considered to be **non-irritating**. The negative and positive controls performed as anticipated.

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I. Introduction

A. Purpose

In vitro dermal and ocular irritation studies were conducted to evaluate whether a test article would induce dermal or ocular irritation in the EpiDerm™ and EpiOcular™ model assays. MatTek Corporation's reconstructed human epidermal and human ocular models are becoming a standard in determining the irritancy potential of test substances. They are able to discriminate between irritants and non-irritants. The EpiDerm™ assay has accuracy for the prediction of UN GHS R38 skin irritating and no-label (non-skin irritating) test substances. The EpiOcular™ assay can differentiate chemicals that have been classified as R36 or R41 from the EU classifications based on Dangerous Substances Directive (DSD) or between the UN GHS Cat 1 and Cat 2 classifications.

II. Materials

- A. Incubation Conditions:** 37 °C at 5% CO₂ and 95% relative humidity
- B. Equipment:** Forma humidified incubator, ESCO biosafety laminar flow hood, Synergy HT Microplate reader; Pipettes
- C. Media/Buffers:** DMEM based medium; DPBS; sterile deionized H₂O
- D. Preparation:** Pre-incubate (37 °C) tissue inserts in assay medium; Place assay medium and MTT diluent at 4 °C, MTT concentrate at -20 °C, and record lot numbers of kit components
- E. Tissue Culture Plates:** Falcon flat bottom 96-well, 24-well, 12-well, and 6-well tissue culture plates
- F. Reagents:** MTT (1.0mg/mL); Extraction Solution (Isopropanol); SDS (5%); Methyl Acetate
- G. Other:** Nylon Mesh Circles (EPI-MESH); Cotton tip swabs; 1mL tuberculin syringes; Ted Pella micro-spatula; 220mL specimen containers; sterile disposable pipette tips; Parafilm

III. Test Assay

A. Test System

The reconstructed human epidermal model, EpiDerm™, and cornea epithelial model, EpiOcular™, consist of normal human-derived epidermal keratinocytes which have been cultured to form a multilayer, highly differentiated model of the human epidermis and cornea epithelium. These models consist of organized basal, spinous, and granular layers, and the EpiDerm™ systems also contains a multilayer stratum corneum containing intercellular lamellar lipid layers that the EpiOcular™ system is lacking. Both the EpiDerm™ and EpiOcular™ tissues are cultured on specially prepared cell culture inserts.

B. Negative Control

Sterile DPBS and sterile deionized water are used as negative controls for the EpiDerm™ and EpiOcular™ assays, respectfully.

C. Positive Control

Known dermal and eye irritants, 5% SDS solution and Methyl Acetate, were used as positive controls for the EpiDerm™ and EpiOcular™ assays, respectfully.



D. Data Interpretation Procedure

a. EpiDerm™

An irritant is predicted if the mean relative tissue viability of the 3 tissues exposed to the test substance is reduced by 50% of the mean viability of the negative controls and a non-irritant's viability is > 50%.

b. EpiOcular™

An irritant is predicted if the mean relative tissue viability of the 2 tissues exposed to the test substance is reduced by 60% of the mean viability of the negative controls and a non-irritant's viability is > 40%.

IV. Method

A. Tissue Conditioning

Upon MatTek kit arrival at Arbor Organic Technologies, LLC the tissue inserts are removed from their shipping medium and transferred into fresh media and tissue culture plates and incubated at 37 °C at 5% CO₂ and 95% relative humidity for 60 minutes. After those 60 minutes the inserts are transferred into fresh media and tissue culture plates and incubated at 37 °C at 5% CO₂ and 95% relative humidity for an additional 18 to 21 hours.

B. Test Substance Exposure

a. EpiDerm™

30µL (liquid) or 25mg (solid) of the undiluted test substance is applied to 3 tissue inserts and allowed to incubate for 60 minutes in a humidified incubator (37 °C, 5% CO₂, 95% RH).

b. EpiOcular™

Each tissue is dosed with 20µL DPBS prior to test substance dosing. 50µL (liquid) or 50mg (solid) of the undiluted test substance is applied to 2 tissue inserts and allowed to incubate for 90 minutes in a humidified incubator (37 °C, 5% CO₂, 95% RH).

C. Tissue Washing and Post Incubation

a. EpiDerm™

All tissue inserts are washed with DPBS, dried with cotton tipped swab, and transferred to fresh media and culture plates. After 24 hours the inserts are again transferred into fresh media and culture plates for an additional 18 to 20 hours.

b. EpiOcular™

Tissue inserts are washed with DPBS and immediately transferred into 5mL of assay medium for 12 to 14 minutes. After this soak the inserts are transferred into fresh media and tissue culture plates for 120 minutes for liquid substances and 18 hours for solid substances.

D. MTT Assay

Tissue inserts are transferred into 300µL MTT media in pre-filled plates and incubated for 3 hours at 37 °C, 5% CO₂, and 95% RH. Inserts are then removed from the MTT medium and placed in 2mL of the extraction solution. The plate is sealed and incubated at room temperature in the dark for 24 hours. After extraction is complete the tissue inserts are pierced with forceps and 2 x 200µL aliquots of the blue formazan solution is transferred into a 96 well plate for Optical Density reading. The spectrophotometer reads the 96-well plate using a wavelength of 570 nm.



Dermal and Ocular Irritation Tests

V. Acceptance Criterion

A. Negative Control

The results of this assay are acceptable if the mean negative control Optical Density (OD₅₇₀) is ≥ 1.0 and ≤ 2.5 (EpiDerm™) or ≥ 1.0 and ≤ 2.3 (EpiOcular™).

B. Positive Control

a. EpiDerm™

The assay meets the acceptance criterion if the mean viability of positive control tissues expressed as a % of the negative control is $\leq 20\%$.

b. EpiOcular™

The assay meets the acceptance criterion if the mean viability of positive control tissues is $< 60\%$ of control viability.

C. Standard Deviation

Since each irritancy potential is predicted from the mean viability of 3 tissues for EpiDerm™ and 2 tissues for EpiOcular™, the variability of the replicates should be $< 18\%$ for EpiDerm™ and $< 20\%$ EpiOcular™.

VI. Results

A. Tissue Characteristics

The tissue inserts included in the MatTek EpiDerm™ and EpiOcular™ assay kits were in good condition, intact, and viable.

B. Tissue Viability Assay

The results are summarized in Figure 1. In no case was the tissue viability $\leq 50\%$ for EpiDerm™ or $\leq 60\%$ for EpiOcular™ in the presence of the test substance. The negative control mean exhibited acceptable relative tissue viability while the positive control exhibited substantial loss of tissue viability and cell death.

C. Test Validity

The data obtained from this study met criteria for a valid assay.

VII. Conclusion

Under the conditions of this assay, the test article substance was considered to be **non-irritating**. The negative and positive controls performed as anticipated.

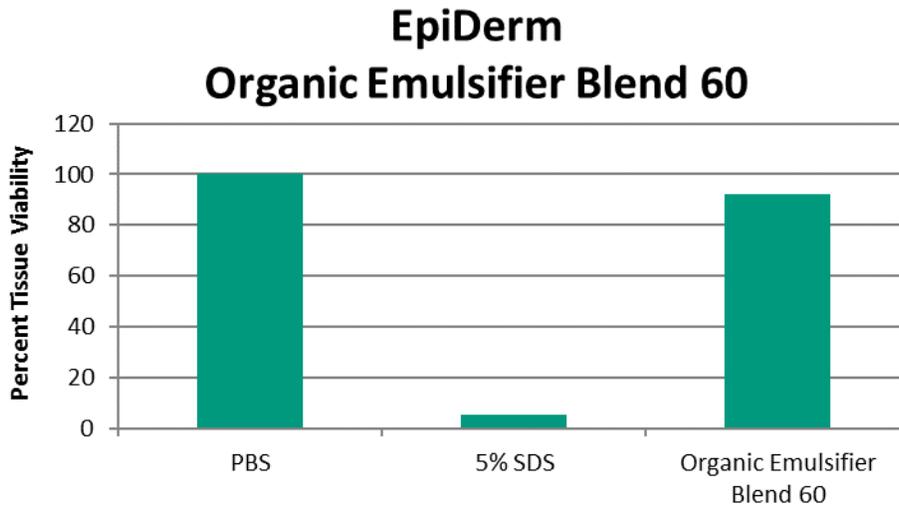


Figure 1: EpiDerm tissue viability

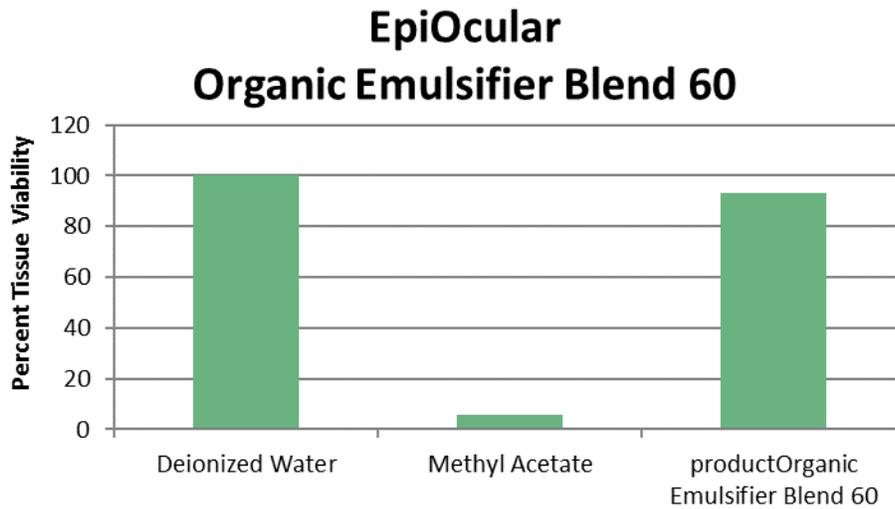


Figure 2: EpiOcular tissue viability

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Certificate of Origin

Organic Emulsifier Blend 60
Code: A60014

Arbor Organic Technologies, LLC. certifies that all raw material(s) used to manufacture the above listed ingredient originate in the United States of America.

Arbor Organic Technologies, LLC. certifies that all raw material(s) used to manufacture the above listed ingredient are prepared from non-GMO organisms and are BSE-Free.

Arbor Organic Technologies, LLC. certifies the below sources for each item listed in our INCI Name:

<u>INCI Name</u>	<u>Source</u>
Oryza Sativa (Rice) Bran Extract	Plant (<i>Oryza sativa</i>)
Cyamopsis Tetragonoloba (Guar) Gum	Plant (<i>Cyamopsis tetragonoloba</i>)

Arbor Organic Technologies, LLC. certifies that the above listed ingredient can be classified as Vegan Compliant.

Arbor Organic Technologies, LLC. certifies that the above listed ingredient has never been tested on animals.

Arbor Organic Technologies, LLC. certifies that the above listed ingredient is manufactured to adhere to the USDA National Organic Program’s guidelines and therefore is free of residual pesticides and heavy metals.

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Organic Emulsifier Blend 60

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Date: 07 / 01 / 2019

Version: 4

Cancels and replaces version: 3

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product Name/Identifier	Organic Emulsifier Blend 60
Product Code	A60014
Recommended Use	Topical Cosmetic Use
Restrictions on Use	None
Supplier/Manufacturing Site Address	Arbor Organic Technologies, LLC 107 Technology Drive Lincolnton, NC 28092, USA
Telephone No. (24hrs)	1-704-276-7100
Fax No.	1-704-276-7101
Emergency Telephone #	1-704-276-7100 (Mon-Fri: 8:00AM – 5:00PM EST)

SECTION 2. HAZARD(S) IDENTIFICATION

Classification:

GHS / CLP

Basis for Classification: Based on present data no classification and labeling is required according to GHS, taking into account the national implementation (United Nations version 2011)

USA

OSHA Regulatory Status: This material is non-hazardous as defined by the American OSHA Hazard Communication Standard (29 CFR 1910.1200).

Europe

Basis for Classification:
-According to present data no classification and labeling is required according to Directives 67/548/EEC or 1999/45/EC.
-This product is not classified as hazardous to health or environment according to the CLP regulation.

Labeling Elements:

Pictograph: No hazard symbol expected

Hazard statements/Signal Word: Not applicable

Precautionary statements:
P233: Keep container tightly closed
P281: Use personal protective equipment as required
P402: Store in a dry place
P404: Store in a closed container
P410: Protect from sunlight
P411: Store at temperatures not exceeding 25°C

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Other hazards which do not result in classification:

No particular fire or explosion hazard.

By mechanical effect: No particular hazards.

By hydroscopic effect: No particular hazards.

US NFPA 704 (National Fire Protection Association) Hazard Rating System:

Health hazard: Rating 0; Normal Material

Flammability: Rating 0, Will Not Burn

Reactivity: Rating 0, Stable

Other Hazard Information: None

Results of PBT and vPvB assessment:

-PBT: Not applicable

-vPvB: Not applicable

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Common Chemical Name: Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar) Gum

Generic name:

Chemical Family: Blend

Description: Mixture: consisting of the following components. This section describes all components of the mixture

<u>Substance</u>	<u>CAS Numbers</u>	<u>EC Numbers</u>	<u>Percentage</u>
Oryza Sativa (Rice) Bran Extract	90106-37-9	N/A	60.00%
Cyamopsis Tetragonoloba (Guar) Gum	9000-30-0	232-536-8	40.00%

Formula: Not applicable

SECTION 4. FIRST-AID MEASURES

General: In all cases of doubt, or when symptoms persist, seek medical attention.

Inhalation: Move to fresh air from exposure area. Get medical attention for any breathing difficulty.

Skin contact: Rinse with soap and water. Get medical advice if irritation develops.

Eye contact: Immediately rinse with water for at least 15 minutes, while keeping the eyes wide open. Consult with a physician.

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Date: 07 / 01 / 2019

Version: 4

Cancels and replaces version: 3

Ingestion: Consult with a physician.
Protection of first-aiders: No special protection required.

SECTION 5. FIRE-FIGHTING MEASURES

Fire and explosion hazards: Not considered to be a fire and explosion hazard

Extinguishing media:

Suitable: Water, dry chemicals, foam & carbon dioxide.

Not suitable: None known

Fire fighting: Move container from fire area if it can be done without risk.
Avoid inhalation of material or combustion by-products.
Stay upwind and keep out of low area

Protection for fire-fighters: Boots, gloves, goggles.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with eyes.

Personal Protective Equipment:
-Protective goggles

Environmental precautions: Prevent entry into sewers and waterways. Do not allow material to contaminate ground water system

Methods for cleaning up:

Recovery: Pick up free liquid for recycling or disposal. Residual liquid can be absorbed on an inert material.

Cleaning/Decontamination: Wash non-recoverable remainder with water.

Disposal: For disposal of residues refer to sections 8 & 13.

SECTION 7. HANDLING AND STORAGE

Handling

Technical measures: Labeling: Keep out of the reach of children.
Measures: For industrial use, only as directed.
Safe handling advice: Wash hands after use. Avoid storage near feed or food stuff.

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Storage

Technical measures: Keep container closed.
Recommended Storage Conditions: Store in a cool, dry place. This product should be stored at room temperature (23 - 25°C). It should not be exposed to excessive heat or cold. Do not freeze.

Incompatible products: Avoid contact with strong oxidizers.
Refer to the detailed list of incompatible materials (Section 10 Stability/Reactivity)

Packaging: Product may be packaged in normal commercial packaging.
Packaging materials: Recommended - Polypropylene & High Density Polyethylene

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Precautionary statements: Ensure adequate ventilation

Control parameters

Occupational exposure Limits:

France: Not Determined
ACGIH: Not Determined
Korea: Not Determined
UK: Not Determined

Surveillance procedures: Not Determined
Engineering measures: Not Determined

Personal Protective Equipment:

Respiratory protection: Local exhaust
Hand protection: Protective gloves made of rubber or neoprene.
Eye protection: Safety glasses.
Collective emergency equipment: Eye fountain.
Skin and Body Protection: Suitable protective clothing

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

Measures related to the Environment: No particular measures.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Free flowing powder
Color: Light beige to tan

Odor: Characteristic

pH (5% in Water): 4.5 – 7.5

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Loss on Drying (1g-1hr-105°C):	15.00% Maximum
Microbial Content:	< 200 CFU/g; No pathogens
Yeast & Mold:	< 200 CFU/g
Gram Negative Bacteria:	0 CFU/g
Vapor density:	Not applicable
Boiling Point:	Not applicable
Freezing Point:	Not applicable
Melting point:	Not determined
Flash point:	Not applicable
Oxidizing properties:	Non oxidizing material according to EC criteria.
Solubility:	
In water:	Dispersible
In organic solvents:	Not determined
Log P:	Not determined

SECTION 10. STABILITY AND REACTIVITY

Stability:	Stable under ordinary conditions of use and storage up to one year then re-test to full product specifications to extend shelf life
Hazardous reactions:	None known
Conditions to avoid:	No dangerous reactions known under use of normal conditions. Avoid extreme heat.
Materials to avoid:	No dangerous reaction known with common products.
Hazardous decomposition products:	None known

SECTION 11. TOXICOLOGICAL INFORMATION

Ingestion:	Not Determined
Dermal:	Non-Irritant (Dermal Irritation Model)
Ocular:	Non-Irritant (Ocular Irritation Model)
Inhalation:	Not Determined
Acute toxicity data:	Not Determined
Sensitization:	Non-Primary Sensitizer
Repeated dose toxicity:	No known effects
Subacute to chronic toxicity:	Not Determined

Additional Toxicological Information: This product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

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Specific effects:

Carcinogenicity:	No known effects
Mutagenicity:	No known effects
Reproductive toxicity:	No known effects
Neuro-toxicity:	No known effects

For more information: Does not present any particular risk on handling under normal conditions of good occupational hygiene practice.

This product has not been tested for the following:

- Primary cutaneous and corrosive irritation
- Acute oral toxicity
- Mutagenicity/genotoxicity

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Effects on the aquatic environment: Not Determined

Biodegradability:

Persistence: Not Determined

Bioaccumulation:

Octanol / water partition coefficient: Not Determined

Mobility:

Precipitation:

Expected behavior of the product: Ultimate destination of the product: Soil & sediment.

Other Adverse Effects:

None known

SECTION 13. DISPOSAL CONSIDERATIONS

Residues from product

Prohibition:	Do not allow the product to be released into the Environment.
Destruction/Disposal:	Dispose of in accordance with relevant local regulations

Contaminated packaging

Decontamination/cleaning:	Cleaning is not required prior to disposal.
Destruction/Disposal:	

Note: Take all necessary precautions when disposing of this product according to local regulations.

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SECTION 14. TRANSPORT INFORMATION

UN Number: None
UN Shipping Name: None

Transport Hazard Class: Not classified as dangerous for transport

Land (rail/road): Material is not restrictive for land transport and is not regulated by ADR/RID
 Sea: Material is not restrictive for sea transport and is not regulated by IMO/IMDG
 Air: Material is not restrictive for land transport and is not regulated by ICA/IATA

Marine Pollutant: No

Transport/Additional Information: Not regulated for US DOT Transport in non-bulk containers
 This material is not dangerous or hazardous

Special Precautions for User: None known

The above regulatory prescriptions are those valid on the date of publication of this sheet. However, given the possible evolution of transport regulations for hazardous materials and in the event of the MSDS in your possession dating back more than 12 months, it is advisable to check their validity with your sales office.

SECTION 15. REGULATORY INFORMATION

Labeling:
 EC regulations: This product does not need to be labeled in accordance with EC Directives or respective national laws

Further regulations

United Kingdom: Handle in accordance with relevant British regulation: control of substance Hazardous to Health Regulations Environmental Hygiene Guidance: EH40
 Workplace Exposure Limits (revised annually)

Korea regulations: Industrial safety and hygiene regulation: No
 Hazardous material control regulation: No
 Fire prevention regulation: No

Other regulations:

EINECS inventory status: Oryza Sativa Bran Extract: N/A
 Cyamopsis Tetragonoloba Gum: 232-536-8

TSCA inventory status: Exempt

AICS inventory status: Exempt: 90106-37-9
 Listed: 9000-30-0

Canadian (CEPA DSL) inventory status: Exempt: Oryza Sativa (Rice) Bran Extract (90106-37-9)
 Listed: Guar gum (DSL)

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Other regulations (Continued):

Japan (MITI list):	Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar Gum)
Korea:	Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar Gum)
China inventory status:	Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar Gum)
Philippines inventory status:	Exempt: Oryza Sativa (Rice) Bran Extract (90106-37-9) Listed: Guar gum

*Listed on 2010 INCI Standard Chinese Name Directory

**Not listed in 2004 CTFA Dictionary – Registered with Personal Care Products Council

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the products described in this sheet. The user's attention is drawn to the possible existence of additional provision which complete these regulations. Please refer to all applicable international, national and local regulations and provisions

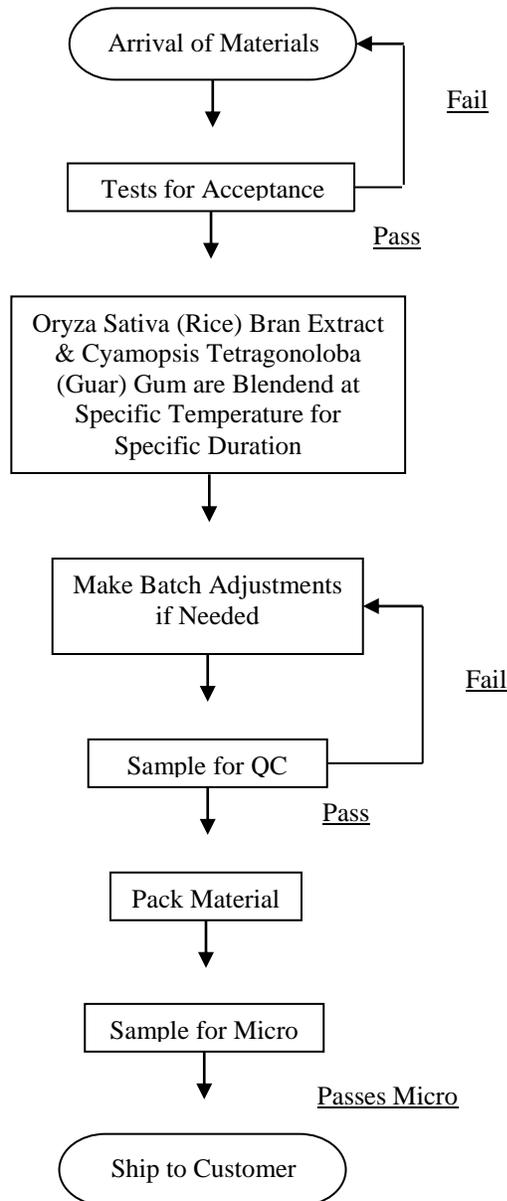
SECTION 16. OTHER INFORMATION

Prohibited uses:	For specific uses, food industry, ask the manufacturer for more information.
Last Revision Date:	04/02/2019
Preparation Date:	07/01/2019
MSDS summary of changes	- Added Irritation Data – Section 11 (Toxicological Information) - Updated Solubility – Section 9 (Physical & Chemical Properties) - Updated Microbial & Yeast & Mold Content – Section 9 (Physical & Chemical Properties)

The information given is based on our knowledge of this product, at the time of publication in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than which it was intended. This is not in any way excuse the user from knowing and applying all the regulations governing their activity. It is sole responsibility of the user to take all precautions required in handling the product. The purpose of mandatory regulation mentioned is to help the user to fulfill his obligations regarding the use of products. This information is not exhaustive, this is not exonerate the user from ensuring that legal obligations other than those mentioned, relating to the use and storage.



MANUFACTURING FLOW CHART-ORGANIC EMULSIFIER BLEND 60-A60014



Information contained in this technical literature is believed to be accurate and is offered in good faith for the benefit of the customer. The company, however, cannot assume any liability or risk involved in the use of its chemical products since the conditions of use are beyond our control. Statements concerning the possible use of our products are not intended as recommendations to use our products in the infringement of any patent. We make no warranty of any kind, expressed or implied, other than that the material conforms to the applicable standard specification.



Organic Emulsifier Blend 60 Certificate of Compliance

Code: A60014
INCI Name: Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar) Gum
INCI Status: Conforms
CAS #: 90106-37-9 & 9000-30-0
EINECS #: N/A & 232-536-8

The following information on regulatory clearances is believed to be accurate and is given in good faith as a guide to a global use of our ingredients in cosmetic applications. No representation or warranty as to its competences or accuracy is made. Information is offered for use in general cosmetic applications and may vary in particular applications. Users are responsible for determining the suitability of these products for their own particular use. All regulatory decisions should be made on the advice of your regulatory group or legal counsel.

Country / Regulatory Body	Status of Product
EU (CosIng)	Compliant
USA (TSCA)	Exempt
Australia (AICS)	Compliant
Japan (METI)	Compliant
Canada (DSL)	Compliant
China (EICIC)	Compliant
Brazil	Compliant
Korea (KECI)	Compliant
Philippines (PICCS)	Compliant
Mexico (COFEPRIS)	Compliant



Arbor Organic Technologies

Organic Emulsifier Blend 60 Code: A60014

Attention must be paid to the use of Organic Emulsifier Blend 60 in the equivalent of OTC formulations (eg. quasi-drugs in Japan, or therapeutic goods in Australia). Some countries maintain restricted inventories of raw materials that can be used in those applications so more detailed guidance may be required.

Organic Emulsifier Blend 60 and its components and impurities are in compliance with the rules governing cosmetic products in the European Union (Directive 76/768/ECC & Regulation No. 1223/2009). The recommended use levels for Organic Emulsifier Blend 60 is 1.00 – 4.00%.

Organic Emulsifier Blend 60 is in compliance with the standardized set of rules developed and approved by the NPA (Natural Products Association).

Organic Emulsifier Blend 60 is considered a non-hazardous material. All significant toxicological routes of absorption have been considered as well as the systemic effects and margin of safety (MoS) based on a no observed adverse effects level (NOAEL). Due to the restriction placed on animal testing of cosmetic raw materials, and Arbor Organic Technologies, LLC's internal non-animal testing policy, this product was not tested for NOAEL.

Organic Emulsifier Blend 60 was tested using *in vitro* dermal and ocular irritation models. This product was found to be non-irritating in both models.

To our knowledge the above material is free of CMR (*) substances, as defined according to Regulation (EC) No 1272/2008 and Cosmetic Regulation (EC) No 1223/2009 as amended.

(*) Carcinogenic, Mutagenic, toxic for Reproduction

Arbor Organic Technologies, LLC certifies that to the best of our knowledge our product does not contain any material listed on California Proposition 65.

Organic Emulsifier Blend 60 is REACH Compliant and free of the following:

- Formaldehyde or formaldehyde donors
- Gluten
- Glycol ethers
- Lactose
- Nanoparticles
- Nitrosamines
- Palm oil/palm kernel oil (or derivatives)
- Parabens
- Paraffin/petroleum products
- Pesticide residues
- Phthalates
- Polyethylene glycol (PEG)
- Residual solvents
- Sulfates
- Volatile organic compounds



Arbor Organic Technologies



www.arbororganictechnologies.com

Organic Emulsifier Blend 60 Formulation Guidelines

Code: A60014
INCI Name: Oryza Sativa (Rice) Bran Extract & Cyamopsis Tetragonoloba (Guar) Gum
CAS #: 90106-37-9 & 9000-30-0
EINECS #: N/A & 232-536-8

Temperature Stability	4.0 – 80.0 °C
pH Stability	4 to 7 pH
Suggested Use Levels	1.00 – 4.00%
Solubility	Water Dispersible
Formulation Guidelines	<p>Recommended to add to the aqueous phase.</p> <p>Sprinkle Organic Emulsifier Blend 60 slowly in aqueous phase. Avoid formation of clumps to speed up dispersion process.</p> <p>High shear mixing or homogenization works best for optimal dispersion.</p> <p>Allow to hydrate.</p>

Version#3/08.21.19