



## Vikoflex<sup>®</sup> 7170

### Epoxidized Soybean Oil

#### PRODUCT DESCRIPTION

Vikoflex<sup>®</sup> 7170 epoxidized soybean oil adds a new dimension to improvements in epoxidized soybean oils. High oxirane efficiency from specially processed soybean oil produces a total compatibility and stabilization performance which is second to none and superior to many present and past commercial products.

Epoxidized oils have been marketed for over three decades. Early products were deficient due to high residual iodine value of the finished epoxide which ranged from 20-25. Thought to be a substitute for DOP, they were misapplied resulting in early spew or exudation. It was discovered over the next few years that to achieve approximately ninety-five percent of the total compatibility potential, iodine value reduction to approximately 5-7, was a necessity. It was found that below an iodine value of three, no absolute compatibility correlation using artificial or natural exposures could be made due to other variables such as hydroxyl value, viscosity, polymerization effects, and base soybean oil.

The only economically unaffected area for improved performance lies in raw material improvements and selection. Vikoflex<sup>®</sup> 7170 epoxidized soybean oil utilizes only the highest iodine value, lowest saturate soybean oil available in the country, reducing the probability of random highly saturated triglycerides adversely affecting formulation compatibility.

Epoxy soybean oils have been found to be the best value of all stabilizing additives. They have been accepted as a standard industry formulation tool, effecting cost reductions and improving performance in heat and light stability over those systems previously employing only metallic stabilizers. No other additive enjoys such universal acceptance for all types of vinyl compound. Vikoflex<sup>®</sup> 7170 epoxidized soybean oil functions as the most effective known synergist to metallic stabilizer compounds in vinyl systems.

At the same time, Vikoflex<sup>®</sup> 7170 epoxidized soybean oil functions as a true polymeric type plasticizer by adding flexibility and retarding volatilization, extraction, and migration due to its high molecular weight.

**DISTRIBUTED BY: R.E. CARROLL, INC.**  
**1570 NORTH OLDEN AVE., TRENTON NJ 08638-3204 USA**  
**PH: 609-695-6211/800-257-9365 F: 609-695-0102**  
**www.recarroll.com**

#### TYPICAL PHYSICAL PROPERTIES

Oxirane Oxygen	6.8% Min
Specific Gravity 25/25°C	0.993
Color - APHA	150 Max
Pounds Per Gallon @ 25°C	8.3
Viscosity Stokes @ 25°C	4.2
Acid Value	0.5 Max
Molecular Weight	1000
Freeze Point	0°C
Fire Point	315°C
Refractive Index @ 25°C	1.472
Odor	Mild
Iodine Value	2 Max

#### PRODUCT BENEFITS

1. Efficient Heat & Light Stabilization
2. Low Viscosity
3. High Detergent Resistance
4. Low Volatility
5. Improves Processing Speed
6. Excellent Pigment Wetting
7. Improves Plastisol Viscosity Stability
8. Low Styrene & Lacquer Mar
9. High Oil & Gas Resistance

## SUGGESTIONS FOR USE

- Plasticization of all PVC flexible and semi-flexible compounds.
- Heat and light stabilization of all flexible, semi-rigid, and rigid PVC compounds.
- Pigment dispersions as an outstanding grinding liquid.
- Plate-out resistant compounds requiring high epoxy levels.
- Acid acceptance in chlorinated hydrocarbons, phosphoric acid esters, and natural resins.
- Plasticization of PVC and PVA emulsions.
- Plasticization of chlorinated rubber, nitrocellulose, and neoprene.
- Process improvement in certain rigid compounds.
- Acid scavenging in soy based ink compounds.

## APPLICATIONS IN PVC COMPOUNDS

- Floor covering, vinyl asbestos and homogenous.
- Coated fabrics: automotive and furniture upholstery, sporting equipment, wall covering, clothing, luggage.
- Unsupported film.
- Pigment dispersions.
- Injection molding compounds.
- Wire and cable coatings.
- Plastics & Organosols used in molding, dipping, and casting applications.
- Extrusions: wetting, gasketing, weather strip, beverage tubing, hose.
- Foam for padding, seating, automotive, packaging.
- Blow molded bottles.
- Printed semi-rigid and rigid laminate film.

## PACKAGING

Vikoflex® 7170 epoxidized soybean oil is available in 55 gallon (450 lb net) drums, 40,000 lb bulk tanktrucks and 160,000 lb min. bulk tankcars.

## COMPATIBILITY

COMPATIBLE WITH	PARTIALLY COMPATIBLE WITH
Polyvinyl Chloride	Alkyds
Chlorinated Rubber	INCOMPATIBLE WITH
Ethyl Cellulose	Cellulose Acetate
Nitrocellulose	Cellulose Acetate Propionate
Polyvinyl Acetate	Polyvinyl Butyral

## SOLVENTS

MISCIBLE	PARTLY MISCIBLE
Aromatic Hydrocarbons	Aliphatic Hydrocarbons
Butanol	Ethanol
Esters	IMMISCIBLE
Ketones	Water
Plasticizers	

## PERFORMANCE INFORMATION @ 50 PHR

	Vikoflex® 7170	Epoxy A	Epoxy B	DOP
Tensile Strength	2770	2805	2758	2650
Elongation	377	358	380	392
100% Modulus	1587	1690	1577	1450
Tear Strength	505	540	507	452
Durometer Hardness	90	92	90	85
Clash & Berg (Tf=135,000)	-11°C	-9.5°C	-11°C	-23°C
Volatility	0.3	0.3	0.4	4.1
Water Extraction	0.03	0.05	0.04	0.26
Soap Extraction	0.28	0.31	0.33	4.20
Gasoline Extraction	2.2	2.5	2.9	13.6
Mineral Oil Extraction	0.96	0.87	1.26	3.1
Motor Oil Extraction	1.41	1.27	1.59	3.77
Hexane Extraction	2.50	2.35	3.12	16.60
Neoprene Migration	7.1	7.4	8.6	18.6
GRS Migration	6.6	6.5	7.3	19.9
Vol. Resistivity, Ohm Cm	.8x10 <sup>13</sup>	.85x10 <sup>13</sup>	1.0x10 <sup>13</sup>	3.0x10 <sup>13</sup>
Accelerated UV				
Hrs to Slight Spew	26	21	17	8

## ENVIRONMENTAL AND SAFETY INFORMATION

BEFORE HANDLING THIS MATERIAL, READ AND UNDERSTAND THE MSDS (MATERIAL SAFETY DATA SHEET) / SDS (SAFETY DATA SHEET) FOR ADDITIONAL INFORMATION ON SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION.

The MSDS/SDS are available on our Website [www.arkema.com](http://www.arkema.com) or upon request at our Customer Service Department at +1(800) 331 7654 in the US, and at +33 (0)1 4900 8837 in Europe. Arkema believes strongly in Responsible Care® as a public commitment.

## MORE TECHNICAL INFORMATION AVAILABLE

Ask your Arkema account manager for further information on high quality Arkema additives for use in PVC, PC, PBT, ABS, PLA and other polymer systems. Arkema produces a full line of impact modifiers, processing aids and epoxidized vegetable oils. In addition, Arkema's Technical Service staff is also available to assist compounders and processors with formulation and processing advice.

### Durastrength® Impact Modifiers

Durastrength® acrylic impact modifiers deliver outstanding impact characteristics for outdoor durable applications in PVC and Engineering Resins.

### Plastistrength® Process Aids

Plastistrength® process aids offer producers a complete line of melt strengtheners and metal release agents for PVC and Engineering Resins. Plastistrength® process aids can improve fusion, surging, and aesthetics.

### Clearstrength® Impact Modifiers

Clearstrength® MBS impact modifiers are designed for extreme impact or impact/clarity combination in PVC and Engineering Resins.

### Biostrength® Additives

The Biostrength® product line of impact modifiers, melt strengtheners and metal release agents are designed to improve properties and enhance processability of polylactic acid (PLA) and other biopolymers compounds.

### Vikoflex® Epoxy Plasticizers

The Vikoflex® line of epoxy plasticizers is derived from renewable resources, like epoxidized linseed oil, soybean and tall oil fatty acid esters for applications such as PVC plasticization, acid and mercaptan scavenging, specialty coatings, adhesives & urethanes, reactive diluents, PU flexible foam and intermediates for surfactants and lube & fuel additives.

## FOR MORE INFORMATION CONTACT

Please contact your local account manager or our headquarters:

In Europe:

ARKEMA

Functional Additives

420 Rue d'Estienne d'Orves

92705 COLOMBES Cedex, France

Tel: +33 (0)1 4900 8837

[functionaladditives.internet@arkema.com](mailto:functionaladditives.internet@arkema.com)

(email)

In US:

Arkema Inc.

Functional Additives Customer Service

900 First Avenue, King of Prussia, PA

19406-1308

Tel: +1 (800) 331 7654

Fax: +1 (800) 205 7064

[arkema.usph-fa-cs@arkema.com](mailto:arkema.usph-fa-cs@arkema.com) (e-mail)

In Asia:

Arkema Pte Ltd.

10, Science Park Road, #01-01A, The Alpha

Singapore Science Park II, Singapore 117684

Tel: +65 6419 9199

[functionaladditives.internet@arkema.com](mailto:functionaladditives.internet@arkema.com)

(email)

VISIT US AT OUR WEBSITE

[www.additives-arkema.com](http://www.additives-arkema.com)

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