

PPWR at a Glance: New EU Packaging Waste Regulation

EU DECLARATION OF CONFORMITY

Regulation (EU) 2025/40 — Packaging and Packaging Waste Regulation / PPWR

Manufacturer:

PLASPAC LTD UNITED KINGDOM

Product Description:

LLDPE Cast Stretch Film / Pallet Wrap Film

Product Groups Covered by this Declaration:

- Hand Stretch Film
- Machine Stretch Film
- Pre-Stretch Film
- Mini Roll / Banding Film
- PCR Recycled Content Stretch Film
- Virgin LLDPE Stretch Film

Material Type:

Mono-material polyethylene-based flexible plastic packaging film / LLDPE-based cast stretch film.

Intended Use:

Transport packaging, pallet stabilisation, load securing and industrial packaging applications.

Food Contact Status:

The products covered by this declaration are not intended for direct food contact, unless otherwise specifically declared in a separate food-contact compliance document.

Declaration

We, **PLASPAC**, hereby declare under our sole responsibility that the above-mentioned packaging products are manufactured as polyethylene-based flexible plastic packaging and are designed to comply with the applicable requirements of **Regulation (EU) 2025/40 on Packaging and Packaging Waste**, insofar as these requirements are applicable to the product category, intended use and placing on the EU market.

The products covered by this declaration are designed as recyclable mono-material PE flexible films and are intended for use in transport packaging and pallet wrapping applications.

For products containing post-consumer recycled material, the recycled content is controlled through internal production records, batch traceability, chain-of-custody documentation and recycled plastic verification documents. The recycled content level is declared separately on the relevant product specification, certificate of analysis and/or recycled content declaration.

Applicable Compliance Areas

This declaration is supported by technical documentation covering, where applicable:

- Product identification and material composition
- Mono-material PE structure
- Recyclability assessment / recyclability declaration
- Recycled content declaration for PCR products
- **EN 15343**-based recycled plastic traceability evidence
- **ISO 22095** chain-of-custody documentation
- Technical Data Sheets
- Certificates of Analysis
- Batch traceability records
- Restricted substances declarations
- Heavy metals compliance declaration
- REACH / SVHC declaration, where applicable
- Non-food contact declaration



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Recycled Content Statement

For recycled-content products, PLASPAC declares the recycled content level according to the relevant product specification.

Available recycled content options may include:

- 30% PCR
- 35% PCR
- 50% PCR
- 70% PCR
- 80% PCR
- 90% PCR
- 99% PCR

The exact recycled content percentage is stated on the relevant product documentation and is supported by traceability and recycled plastic verification records.

Recyclability Statement

The products covered by this declaration are polyethylene-based mono-material flexible films and are designed to be recyclable in PE flexible film recycling streams, where suitable collection, sorting and recycling infrastructure exists.

The recyclability of the final packaging may depend on the complete packaging system, including labels, cores, inks, additives, contamination level and local recycling infrastructure.

Restricted Substances Statement

Based on our current knowledge, supplier declarations, internal controls and available technical documentation, the products covered by this declaration are manufactured without the intentional addition of restricted heavy metals and substances exceeding the applicable regulatory limits for the declared intended use.

Where required, further supporting declarations or test reports can be provided upon request.

Technical Documentation

The technical documentation supporting this declaration is maintained by PLASPAC and can be made available to competent authorities, customers or authorised representatives upon justified request.

This declaration shall remain valid as long as the product composition, manufacturing process, regulatory requirements and intended use remain unchanged.

Place of Issue:

Date of Issue:

Document No.:

Revision:

PLASPAC
UNITED KINGDOM



VINMAR INTERNATIONAL LLC
16825 NORTHCHASE DRIVE SUITE 1400
HOUSTON
77060

Email Address: San.Okan@vinmar.com

Issue Date: 10 Jun 2026

Dear Sir/Madam:

In response to your request, please find enclosed the product regulatory summary for requested product(s).

As regulations are subject to change, customers are encouraged to download the latest regulatory summary from customer portal: OneConnect or contact Customer Service for the latest copy.

If you have any questions or need additional information please contact your ExxonMobil Sales Representative or Customer Account Specialist.

To find specific statements or regulatory information in Product Regulatory Summary(PRS), you can press *Ctrl+F* to search for key words or phrases within the PDF file.

Exceed™ Tough m 3812.CB_AMERICAS

Reference ID: P0000047256

Product Name: Exceed™ Tough m 3812.CB

Manufacturing Region: AMERICAS

Category: Food Regulations & Pharmacopoeia

ANVISA FOOD CONTACT REGULATIONS

With regard to the compliance status of the product referenced above with the resolution(s) identified below the following can be declared:

The above product(s) complies with relevant requirements of Anvisa - Resolution RDC no. 91/2001 and its amendments concerning "General Criteria and Classification of Materials for Packaging and Equipment in Contact with Food".

The monomer(s), other authorized polymers and starting materials intentionally used in the above polymer grade are listed in the Annex and/or are authorized in accordance with the requirements of Anvisa - Resolution RDC no. 56/12 amended up to 961/2025 for plastic materials intended for the manufacture of food-contact packages and equipment.

The additive(s) intentionally used in the above polymer grade are listed in the Annex or are authorized in accordance with the requirements of Anvisa - Resolution RDC no. 326/19 amended up to 963/2025 on the positive list of additives and polymeric coatings for manufacturing of plastic materials intended to come into contact with food.

This product is produced under conditions of good manufacturing practice and is of a purity suitable for its intended use in food contact applications in accordance with the Anvisa regulatory citations identified.

The Resolution RDC no. 589/21 has no impact to compliance statement.

Monomer restrictions:

The above grade contains a monomer that has the following SML restriction:

Monomer: 1-Hexene CAS no.: 592-41-6 Restriction: SML = 3 mg/kg

This note contains information relative to the presence of additives subject to a restriction according to Anvisa - Resolution RDC no. 326/19 as described in this statement.

Additive: n-Octadecyl 3,5-di-tert-butyl-4-hydroxy-hydrocinnamate CAS no.: 2082-79-3 Max. conc.*: 1800 ppm Restriction: SML = 6 mg/kg food

Additive: Tris phosphite (nonyl and/or dinonylphenyl) Max. conc.*: 2100 ppm Restriction: SML = 30 mg/kg food

Additive: Zinc Oxide CAS no.: 1314-13-2 Max. conc.*: 1080 ppm Restriction: SMLT = 5 mg/kg food (expressed as Zn)

* "Max. conc." refers to the maximum amount of stated additive in the above product(s). This information is provided for general guidance / informational purposes only and ExxonMobil provides no guarantees or warranties with respect to this information and disclaims responsibility or liability for use by any third party of this information.

The manufacturer of food-contact materials and articles - made from or containing this product grade - must ensure that the finished materials or articles meet the general regulatory requirements and that they do not bring about an unacceptable change in the composition of the foodstuffs or a deterioration in the organoleptic characteristics thereof and do not release constituents in foodstuffs in quantities that can endanger human health.

Furthermore, the manufacturer of food-contact materials and articles that contain this product as a component must also ascertain that the finished materials or articles meet any migration limits, composition requirements and/or other restrictions in use that may be applicable for the specific finished material or article and for its specific intended use in some or all countries.

In addition, the finished food-contact material or article must be technically suitable for the intended use.

CANADA FOOD CONTACT REGULATIONS (HPFB)

With regard to the compliance status of the product referenced above with the regulation(s) identified below the following can be declared:

A "Letter of No Objection" has been received from Health Canada for this product. This product should be included in the "Lists of acceptable polymers for use in food packaging applications" available, by request, from Health Canada on their website. Please note that Health Canada updates the list periodically and recently added polymers may not yet be included. In addition, polyethylene grades granted a LONO before November 1, 2003 and other polymer grades granted a LONO before January 1, 2004 may not be included in the list. If the polymer grade is not included in the list, please reach out to your sales representative to request an update to Health Canada.

Product Name: Exceed™ Tough m 3812.CB

Manufacturing Region: AMERICAS

CHINA FOOD CONTACT REGULATIONS

With regard to the compliance status of the product referenced above with the applicable regulations of the People's Republic of China on National Food Safety Standard, the following can be declared:

This product is not in compliance with applicable regulations of the People's Republic of China on National Food Safety Standard.

对以上产品是否符合中华人民共和国食品安全国家标准相关规定事宜，声明如下：此产品不符合中华人民共和国食品安全国家标准相关规定。

COSMETICS / INCI

With regard to the compliance status of the product referenced above with the regulation(s) identified below the following can be declared:

Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products, applies to cosmetics products and their ingredients as defined by the Article 1 of this regulation (*).

The above polymer grade is not intended to be used as ingredient of cosmetics or as cosmetic product.

However, following information should be considered :

* EU Safety Data Sheet according to Regulation (EC) No 1907/2006 requirements.

* Product Regulatory Summary document, including but not limited to following paragraphs: Presence / Absence, EUROPEAN FOOD CONTACT REGULATIONS, REACH CANDIDATE LIST, REACH-1907/2006 ANNEX XVII, CALIFORNIA PROP 65.

* Above polymer grade does not contain intentionally used substances listed in in Annex II or III of the Cosmetics Regulation 1223/2009, as amended up to Regulation 2024/996, which are present at levels above 10 ppm or migrating in levels above 100 ppb from final packaging article and not reported in above mentioned information.

Although this product is not routinely tested for their presence, based on product composition knowledge, these substances are not expected to be present. However, the fact that these substances are not intentionally used by ExxonMobil in this product does not exclude that trace levels of these substances may be present as a result of the specific characteristics of the raw materials and/or of the manufacturing process.

(*) A 'cosmetic product' means any substance or mixture intended to be placed in contact with the external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance, protecting them, keeping them in good condition or correcting body odours.

DRUG MASTER FILE (US FDA)

With regard to the compliance status of the product referenced above with the regulation(s) identified below the following can be declared:

This product is not included in a U. S. FDA Drug Master File (DMF).

EU DRINKING WATER

With regard to the compliance status of the product referenced above with the regulation(s) identified below the following can be declared:

There is currently no harmonized legislation at EU level for materials used in connection with drinking water application. Some EU Member States are currently developing new legal requirements with a view of obtaining a certain harmonization. Therefore, we cannot provide definite statements on the regulatory status of ExxonMobil products with respect to use in drinking water applications.

We recommend you to consult with national laboratories about material and final article requirements.

EUROPEAN FOOD CONTACT REGULATIONS

With regard to the compliance status of the product referenced above with the regulation(s) identified below the following can be declared:

EU FOOD-CONTACT REGULATION

The monomer(s) and the additive(s) intentionally used in the above polymer grade are listed in Annex 1 or are authorized in accordance with the requirements of Commission Regulation (EU) No 10/2011 of 14 January 2011, as amended up to Regulation (EU) No 2026/245 and corrected amendments up to Regulation (EU) 2026/250 on plastic materials and articles intended to come into contact with food.

TRICOLENE® LLDPE

Linear Low Density Polyethylene



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Revised Date: May 21st, 2026

TRICOLENE® LLDPE

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Type of Product	References
TRICOLENE® LLDPE Butene (C4) comonomer	Pipe Extrusion- C4 MDPE (Ziegler-Natta MDPE): TRICOLENE® LLDPE MDBP02939, TRICOLENE® LLDPE MDBP06939. Extrusion-Blow Molding-C4 LLDPE (Ziegler-Natta LLDPE): TRICOLENE® LLDPE LLBB06920 Film Extrusion-C4 LLDPE (Ziegler-Natta LLDPE): TRICOLENE® LLDPE LLB08919, TRICOLENE® LLDPE LLB0822, TRICOLENE® LLDPE LLB08921SB, TRICOLENE® LLDPE LLB08921SBZ, TRICOLENE® LLDPE LLB08922SB. TRICOLENE® LLDPE LLB1918, TRICOLENE® LLDPE LLB1919, TRICOLENE® LLDPE LLB1918B, TRICOLENE® LLDPE LLB1918SB-3, TRICOLENE® LLDPE LLB1919SB, TRICOLENE® LLDPE LLB1918SB-5, TRICOLENE® LLDPE LLB1918SB-13, TRICOLENE® LLDPE LLB1923SB, TRICOLENE® LLDPE LLB1918SB-7, TRICOLENE® LLDPE LLB1918SB-9, TRICOLENE® LLDPE LLB1918SB, TRICOLENE® LLDPE LLB1918SBX. TRICOLENE® LLDPE LLB2919, TRICOLENE® LLDPE LLB2919SB, TRICOLENE® LLDPE LLB2918SB, TRICOLENE® LLDPE LLB2918SB-13. TRICOLENE® LLDPE LLB3918, TRICOLENE® LLDPE LLB3919, TRICOLENE® LLDPE LLB3925, TRICOLENE® LLDPE LLB3925S, TRICOLENE® LLDPE LLB3925SB-3. Injection Molding & Compounding-C4 LLDPE (Ziegler-Natta LLDPE): TRICOLENE® LLDPE LLBN2924 Powder, TRICOLENE® LLDPE LLBI20925, TRICOLENE® LLDPE LLBM20925 Powder, TRICOLENE® LLDPE LLBI35926, TRICOLENE® LLDPE LLBI50926, TRICOLENE® LLDPE LLBM50926 Powder, TRICOLENE® LLDPE LJ2650B, TRICOLENE® LLDPE LLBI105929
TRICOLENE® LLDPE Hexene (C6) comonomer	Film Extrusion-C6 LLDPE (Ziegler-Natta LLDPE): TRICOLENE® LLDPE LLH02923-BS, TRICOLENE® LLDPE LLH05917, TRICOLENE® LLDPE LLH05917SB, TRICOLENE® LLDPE LLH05924, TRICOLENE® LLDPE LLH08925, TRICOLENE® LLDPE LLH08925B, TRICOLENE® LLDPE LLH08917SB, TRICOLENE® LLDPE LLH08925SB, TRICOLENE® LLDPE LLH0919. TRICOLENE® LLDPE LLH1918, TRICOLENE® LLDPE LLH1919, TRICOLENE® LLDPE LLH1919B, TRICOLENE® LLDPE LLH1919BX, TRICOLENE® LLDPE LLH1919SBX, TRICOLENE® LLDPE LLH1919SB, TRICOLENE® LLDPE LLH1919SBY, TRICOLENE® LLDPE LLH1920SB, TRICOLENE® LLDPE LLH1918SB-5, TRICOLENE® LLDPE LLH1918SB. TRICOLENE® LLDPE LLH2918, TRICOLENE® LLDPE LLH2920, TRICOLENE® LLDPE LLH3918.

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	Film Extrusion- C6 mLLDPE (Metallocene LLDPE): TRICOLENE® LLDPE mLLDH04925, TRICOLENE® LLDPE mLLDH05923, TRICOLENE® LLDPE mLLDH05923Z, TRICOLENE® LLDPE mLLH09927, TRICOLENE® LLDPE mLLH1915, TRICOLENE® LLDPE mLLH1918, TRICOLENE® LLDPE mLLH1918Z, TRICOLENE® LLDPE mLLH1923, TRICOLENE® LLDPE mLLH1918BZ, TRICOLENE® LLDPE mLLH1918SB, TRICOLENE® LLDPE mLLH1918SBXZ, TRICOLENE® LLDPE mLLH1918SBYZ, TRICOLENE® LLDPE mLLH1915SB, TRICOLENE® LLDPE mLLH15918, TRICOLENE® LLDPE mLLH15918Z, TRICOLENE® LLDPE mLLH15918SB, TRICOLENE® LLDPE mLLH15918SBZ. TRICOLENE® LLDPE mLLH35918, TRICOLENE® LLDPE mLLH45920, TRICOLENE® mLLDPE mVLH4912 Pipe Extrusion- C6 MDPE (Ziegler-Natta MDPE): TRICOLENE® LLDPE MDHP02939, TRICOLENE® LLDPE MDHF03937. Film Extrusion- C4 MDPE (Ziegler-Natta MDPE): TRICOLENE® LLDPE MDBFL15935-BS Film Extrusion- C6 MDPE (Ziegler-Natta MDPE): TRICOLENE® LLDPE MDHFL12938, TRICOLENE® LLDPE MDHF08926B, TRICOLENE® LLDPE MDHF08934SB, TRICOLENE® LLDPE HDHF2942, TRICOLENE® LLDPE HDHF4942 Film Extrusion- C6 mMDPE (Metallocene MDPE): TRICOLENE® mLLDPE mMDHF09934 Rotomolding- C6 MDPE (Ziegler-Natta MDPE): TRICOLENE® LLDPE HDHR2942, TRICOLENE® LLDPE MDHR4939U, TRICOLENE® LLDPE MDHR5935U (TRICOLENE® LLDPE TR-0535-UI), TRICOLENE® LLDPE MDHR7935U, TRICOLENE® LLDPE MDHR7935U Powder Rotomolding- C6 mMDPE (Metallocene MDPE): TRICOLENE® mLLDPE mMDHR4940U, TRICOLENE® LLDPE mMDHR6935U
TRICOLENE® LLDPE Octene (C8) comonomer	Film Extrusion-C8 LLDPE (Ziegler-Natta LLDPE): TRICOLENE® LLDPE LLOF08926B, TRICOLENE® LLDPE LLOF1920X, TRICOLENE® LLDPE LLOF1920, TRICOLENE® LLDPE LLOF1920Z, TRICOLENE® LLDPE LLOF1920-12, TRICOLENE® LLDPE LLOF1920B, TRICOLENE® LLDPE LLOF1920BZ, TRICOLENE® LLDPE LLOF1920SB, TRICOLENE® LLDPE LLOF1920SBZ. TRICOLENE® LLDPE LLOF2920, TRICOLENE® LLDPE FG220-A Film Extrusion- C8 mLLDPE (Metallocene LLDPE): TRICOLENE® LLDPE mLLOF1916, TRICOLENE® LLDPE mLLOF1916Z, TRICOLENE® LLDPE mLLOF1916SB, TRICOLENE® LLDPE mLLOF1916SBZ, TRICOLENE® LLDPE SPS116D. TRICOLENE® LLDPE mLLOF4917

TRICON DRY CHEMICALS LLC/ TRICON ENERGY LTD. confirms that the prime grades mentioned above comply with the following regulations, according to the latest information provided by our suppliers:

TRICOLENE® LLDPE

Linear Low Density Polyethylene



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United States Food Regulations (FDA)

The TRICOLENE® PE grades listed above, and the additives incorporated in them, comply with the Food and Drug Administration (FDA) regulation: **Code of Federal Regulations, CFR Title 21, 177.1520: Olefin Polymers:**

PE Resin	FDA Clearance 21 CFR 177.1520	Specifications 21 CFR 177.1520	Types of Food 21 CFR 176.170(c) Table 1	Conditions of Use 21 CFR 176.170(c) Table 2
TRICOLENE® LLDPE Butene LLDPE	(a)(3)(i)(c)(1)	(c)(3.2a)	All (I-IX)	A-H
TRICOLENE® LLDPE Hexene LLDPE	(a)(3)(i)(a)(2)	(c)(3.2a)	All (I-IX)	A-H
TRICOLENE® LLDPE Octene LLDPE	(a)(3)(i)(a)(1)	(c)(3.2a)	All (I-IX)	A-H

<https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-preparation-premarket-submissions-food-contact-substances-chemistry>

European Union Food Contact Regulations - EU

The composition of TRICOLENE® PE grades listed above complies with the European Union's food contact regulations, including the Framework **Regulation (EC) N° 1935/2004** and **Commission Regulation (EU) N° 10/2011**, and following last amendments: **Commission Regulation (EU) 2020/1245** from September 2, 2020, **Commission Regulation (EU) 2023/1442** from July 11th, 2023, **Commission Regulation (EU) 2023/1627** from August 10th, 2023, **Commission Regulation (EU) 2024/3190** from December 19, 2024, **Commission Regulation (EU) 2025/351** of February 21st, 2025, **Commission Regulation (EU) 2026/245** of February 2nd, 2026, and **Commission Regulation (EU) 2026/250** of February 2nd, 2026.

<https://eur-lex.europa.eu/eli/reg/2004/1935/oj/eng>

<https://eur-lex.europa.eu/eli/reg/2011/10/oj>

<https://eur-lex.europa.eu/eli/reg/2023/1442/oj>

<https://eur-lex.europa.eu/eli/reg/2023/1627/oj>

<https://eur-lex.europa.eu/eli/reg/2023/1627/oj>

<https://eur-lex.europa.eu/eli/reg/2024/3190/oj/eng>

<https://eur-lex.europa.eu/eli/reg/2025/351/oj/eng>

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202600245

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202600250

Commission Regulation (EU) and Regulation (EC) both represent binding European law directly applicable in all Member States. The primary difference is in timing and legal entity: "EC" refers to regulations adopted before the Lisbon Treaty took effect on **December 1, 2009 (European Community), while "(EU)" refers to those adopted after that date (European Union).**

TRICOLENE® LLDPE

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The monomers and additives used to produce TRICOLENE® PE grades listed above are listed in the Union List of Authorized Substances of **Commission Regulation (EU) N°10/2011**.

TRICOLENE® PE grades listed above may contain monomers regulated under Specific Migration Limits (SML). These resins also include one or more additives regulated with an SML.

All grades comply with the requirement of the Overall Migration Limit (OML) of 60 mg/kg or 10 mg/dm² as mentioned in **Commission Regulation (EU) N°10/2011** according to Overall Migration (OM) Tests: OM1, OM2, and OM3:

Test Number	Contact Time in days [d] or hours [h] at Contact Temperature in [°C] for testing	Intended Food Contact Conditions	Food Simulants
OM1	10 d at 20 °C	Any food contact at frozen and refrigerated conditions	Simulant A = 10% Ethanol (Aqueous Foods)
OM2	10 d at 40 °C	Any long-term storage at room temperature or below	Simulant B = 3% acetic acid (Foods that have a hydrophilic character and can extract hydrophilic substances, and which have a pH below 4.5)
OM3	2 h at 70 °C	Any food contact conditions that are not followed by long-term room temperature or refrigerated storage	Simulant C = 20% Ethanol (Foods with hydrophilic character and can extract hydrophilic substances, alcoholic foods with alcohol content of up to 20 % and foods containing a relevant amount of organic ingredients that render the food more lipophilic). Simulant D1 = 50% Ethanol (Alcoholic foods with an alcohol content of above 20% and dairy products) Simulant D2 = 100 % Olive Oil (Fatty foods and foods that contain free fats at the surface)

For complete compliance, an Overall Migration Limit of 60 mg/kg or 10 mg/dm², and Specific Migration Limits (SMLs), apply to the final package from our customers intended to come into contact with food. In other words, because the fabrication process (blown film extrusion, cast film extrusion, extrusion-blow molding, and injection molding) can affect migration behavior, the fabricator of the articles is responsible for testing and determining the migration limit for final articles intended to come into contact with foodstuffs.

PE Resin	Substance	Chemical Name	CAS #	SML	Concentration Nominal
TRICOLENE® Octene LLDPE	Comonomer	1-octene	0000111-66-0	15 mg/kg (15 ppmw)	0.15 ppmw
TRICOLENE® Hexene LLDPE	Comonomer	1-hexene	0000592-41-6	3 mg/kg (3 ppmw)	0.15 ppmw
TRICOLENE® Butene LLDPE	Comonomer	1-butene	0000106-98-9	-----	-----

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All TRICOLENE® LLDPE	Monomer	Ethylene	0000074-85-1	-----	-----
TRICOLENE® Butene LLDPE <i>Blown Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	200 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	800 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	500 ppmw
TRICOLENE® Butene LLDPE <i>Cast Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	500 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1100 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	500 ppmw
TRICOLENE® Hexene LLDPE <i>Blown Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	200 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	800 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	500 ppmw
TRICOLENE® Hexene LLDPE <i>Cast Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	500 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1100 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	0
TRICOLENE® Hexene mLLDPE <i>Blown Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	500 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1000 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	0
TRICOLENE® Hexene mLLDPE <i>Cast Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	1500 ppmw

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	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1500 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	900 ppmw
TRICOLENE® Octene LLDPE Octene mLLDPE <i>Blown Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	500 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1000 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	0
TRICOLENE® Octene mLLDPE <i>Cast Film Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	1500 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1500 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	900 ppmw
TRICOLENE® Butene LLDPE Hexene LLDPE <i>Rotomolding Products</i>	Primary Sterically Hindered Phenolic Antioxidant	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate	2082-79-3	6 mg/kg (6 ppmw)	500 ppmw
	Secondary Phosphite Antioxidant	Phosphorous acid, mixed 2,4-bis(1,1-dimethylpropyl)phenyl and 4-(1,1-dimethylpropyl)phenyl triesters	939402-02-5	10 mg/kg (10 ppmw)	1000 ppmw
	Acid Neutralizer	Zinc	7440-66-6	5 mg/kg (5 ppmw)	0

Dual Use Additives

TRICOLENE® PE grades listed above do not have dual additives listed on **Regulation (EC) N° 1333/2008**: Food Additives and/or **Regulation (EC) N° 1334/2008**: Flavourings
<https://eur-lex.europa.eu/eli/reg/2011/10/oj>

Canada Food Contact Regulations - HPFB

A "Letter of No Objection" for these products has been approved by Health Canada's Health Products and Food Branch (HPFB). TRICOLENE® PE grades listed above may be used in food-contact applications, such as bottles, food pails, caps, films, and casings, at and below 212°F (100 °C) for all types of food.

<https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/guidance-documents/information-requirements-food-packaging-submissions.html>

TRICOLENE mLLH35918

Linear Low Density Polyethylene
Metallocene

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Houston TX, USA - 77056
+1-713-963-0066
www.triconenergy.com



ADDING A WORLD OF VALUE

PRODUCT DESCRIPTION

This type of mLLDPE is a copolymer of ethylene and 1-hexene produced with Metallocene catalysts in a gas phase polymerization process.

PROCESSING METHODS

Cast Film Extrusion

CHARACTERISTICS

High Puncture Resistance
High Stretchability
High Unitization Holding Force

APPLICATIONS

Cast Stretch Films
Lamination Films
Cast Hygiene Films

RESIN PROPERTIES

Melt Flow Rate 2.16 kgf/190 °C MFR₂
Density 23 °C
Antioxidant Package

TEST METHOD

ASTM D1238
ASTM D1505

VALUES, ENGLISH UNITS

3.3 g/10 min
0.918 g/cm³
Yes

VALUES, INTERNATIONAL UNITS

3.3 g/10 min
0.918 g/cm³
Yes

CAST FILM PROPERTIES

Evaluated Film Thickness
Dart Impact Strenght
38.0 mm (1.5 in), 0.66 m (26.0 in), F50

TEST METHOD

ASTM D1709A

VALUES, ENGLISH UNITS

1.0 mils
150 g

VALUES, INTERNATIONAL UNITS

25.4 µm
150 g

Elmendorf Tear Strenght

ASTM D1922

MD 197 g
TD 517 g

Tensile Strenght at Yield
20.0 in/min (508 mm/min)

ASTM D882

MD 1,242 psi
TD 1,138 psi

Tensile Strenght at Break
20.0 in/min (508 mm/min)

ASTM D882

MD 10,657 psi
TD 7,155 psi

Tensile Elongation at Break
20.0 in/min (508 mm/min)

ASTM D882

MD 550 %
TD 720 %

Haze

ASTM D1003

2.4 %
2.4 %

PROCESSING CONDITIONS OF EVALUATED FILM

Melt Temperature

VALUES, ENGLISH UNITS

455 ° F

VALUES, INTERNATIONAL UNITS

235 ° C

The data presented here is true and accurate to the best of our knowledge. Likewise, the values are nominal and should not be taken as minimum or maximum specifications. No warranty, express or implied, is made regarding resin performance. The customer must validate these properties according to his own evaluations on his machine and in his laboratory.

REGULATORY COMPLIANCE

This resin complies with the following FDA regulation: 21 CFR 177.1520: Olefinic Polymers. This regulation describes polyolefin resins that can be used safely for food packaging and preservation at low temperatures and at ambient temperatures. This resin is not designed for use in medical applications and should not be used in such applications.

TRICOLENE[®]

LLB3919

Linear Low Density Polyethylene

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www.triconenergy.com



ADDING A WORLD OF VALUE

PRODUCT DESCRIPTION

This type of LLDPE is a copolymer of ethylene and 1-butene produced with Ziegler-Natta catalysts in a gas phase polymerization process. This type of butene LLDPE does not contain any slip or antiblock additives.

PROCESSING METHODS		CHARACTERISTICS		APPLICATIONS	
Cast Film Extrusion		Gloss and Drawdown Good Cling Force Enhanced Extrusion Performance		Cast Stretch Films	
RESIN PROPERTIES		TEST METHOD	VALUES, English Units	VALUES, International Units	
Melt Flow Rate	2.16 kgf/190 °C	MFR ₂	ASTM D1238	2.5 g/10 min	2.5 g/10 min
Density	23 °C		ASTM D1505	0.919 g/cm ³	0.919 g/cm ³
Antioxidant Package			---	Yes	Yes
CAST FILM PROPERTIES		TEST METHOD	VALUES, English Units	VALUES, International Units	
Evaluated Film Thickness		---	0.75 mils	19.1 µm	
Elmendorf Tear Strength		ASTM D1922	MD 60 g TD 400 g	60 g 400 g	
Tensile Strength at Break			MD 5,000 psi	34.5 MPa	
20.0 in/min (508 mm/min)		ASTM D882	TD 2,300 psi	15.9 MPa	
Tensile Elongation at Break			MD 650 %	650 %	
20.0 in/min (508 mm/min)		ASTM D882	TD 870 %	870 %	
Tensile Secant Modulus of Elasticity			MD 20,000 psi	137.9 MPa	
1 % Elongation, 0.051 in/min (1.3 mm/min)		ASTM D882	TD 20,000 psi	137.9 MPa	
Haze		ASTM D1003	1.5 %	1.5 %	
Specular Gloss	45 °	ASTM D2457	95.0	95.0	
PROCESSING CONDITIONS OF EVALUATED FILM			VALUES, English Units	VALUES, International Units	
Melt Temperature			550 ° F	288 ° C	
Chill Roll Temperature			80 ° F	27 ° C	
Specific Output			18.00 Lb/h/in	1.79 kg/h/cm	

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REGULATORY COMPLIANCE

This resin complies with the following FDA regulation: 21 CFR 177.1520: Olefinic Polymers. This regulation describes polyolefin resins that can be used safely for food packaging and preservation at low temperatures and at ambient temperatures. This resin is not designed for use in medical applications and should not be used in such applications.

LLBF-318A Linear Low Density Polyethylene

LLBF-318A is a **certified prime resin Butene-comonomer**, specially designed for cast extrusion and coextrusion for general purpose packaging. **LLBF-318A** features easy processability and very good film strength. **LLBF-318A** major applications include cast stretch wrap and laminations. **LLBF-318A** contains **no slip** and **no antiblock**. **LLBF-318A** complies with FDA regulation 21CFR 177.1520 (c) 3.1 (a) and most international regulations concerning the use of Polyethylene in contact with food articles.

Typical Properties

PROPERTIES*	ASTM TEST	UNIT ENGLISH (METRIC)	NOMINAL VALUES
RESIN			
Melt Index	D 1238E	gr./10 min	2.8
Density	D 1505	gr./cm ³	0.919
FILM**			
Haze	D 1003	%	2.1
Gloss	D 2457	@45°	92
Tensile Strength ¹	D 882	psi x 1000 (MPa)	4.9/3.0 ² (34/21)
Yield Strength	D 882	psi x 1000 (MPa)	1.3/1.3 ² (9/9)
Ult. Elongation	D 882	%	645/930 ²
Elmendorf Tear	D 1922	gr.	58/365 ²

TYPICAL VALUE OF PROPERTIES NOT TO BE CONSTRUED AS SPECIFICATIONS.

* - Test specimens from compression molded plaque according to ASTM D 1928 Procedure C.

** - 0.8 mils (20μ) film. Film properties are typical of cast film extruded at 280°C.

1 - 1% secant.

2 - MD/TD.

THIS PRODUCT DATA SHEET EFFECTIVE JULY 2022 SUPERSEDES ALL DATA PREVIOUSLY PUBLISHED

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