



The **Cryovac® CT-304E** is a revolutionary **micro-layered** shrink film. This polyolefin shrink film provides a radical new technological capability within the packaging industry. This innovation incorporates 25 to 50 discrete micro-layers versus conventional shrink films that are comprised of 1, 3 or 5 layers, which provides enhanced overall performance.

The most sustainable solution in the industry:

- Up to 50% packaging weight reduction
- Significant source reduction results in lower tunnel temperatures
- Longer rolls result in fewer changeovers and increased up-time
- Reduction of the number of cores, cartons, pallets and storage place

Features and benefits

- Excellent optics, highest clarity and lowest haze for improved retail appeal
- Improved efficiency and lower operating costs
- Enhanced seal strength and durability

Properties:

Film Data	Unit	Typical Values		Test Method
Thickness	μ	14		ASTM D6988
Yield	(m ² /kg)	77		
Length Single Wound Centre Folded	m m	2908 1454		
Width Single Wound (10 mm increment) Centre Folded (50 mm increment)	mm mm	From 100 to 1610 From 155 to 905		
Core diameter	mm	76		
Mechanical		LD*	TD**	
Tensile Strength	kg/cm ²	1200	1300	ASTM D882-95
Elongation at Break	%	100	120	ASTM D882-95
Modulus of Elasticity	kg/cm ²	5200	5400	ASTM D882-95
Tear Propagation	g	5.0	7.3	ASTM D1938
Coefficient of Friction	(film-to-film, kinetic)	0.13		ASTM D1894
Puncture Resistance	g	2500		COV-E-236
Shrink & Barrier				
Free Shrink @120°C	%	67	65	ASTM D2732
Max. Shrink Tension	kg/cm ²	26	34	COV-E-302
Moisture Vapour Transmission Rate	g/m ² /24hrs @ 38°C	33		ASTM F1249
Oxygen Transmission Rate	cm ³ /m ² /24hrs @23°C, 1 atm	11000		D3985-95
CO ₂ Transmission Rate	cm ³ /m ² /24hrs @23°C, 1 atm	45000		ASTM D1434
Optical				
Haze	%	3.5		ASTM D1003
Gloss	gloss units (i = 60°)	131		ASTM D2457
STORAGE CONDITIONS	Recommended conditions for long-term storage, below 32°C, max. 80% R.H., up to one year			
FOOD LAW APPROVAL	Complies with EU regulations on food contact materials. See "Product Regulatory Compliance Statement" for details.			
QUALITY	All Cryovac manufacturing operations in Europe have received or are applying for ISO 9001:2008 Quality Certification or its local equivalent			

* LD = Longitudinal Direction **TD = Transverse Direction

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