



Vanguard CCL

High performance shrink film

Vanguard CCL is an advanced biaxially oriented high clarity crosslinked LLDPE shrink film with the versatility to shrink wrap a wide variety of products. Vanguard CCL is formulated and produced to ensure performance characteristics to meet even the toughest shrink wrapping applications. This film is compatible with nearly all shrink wrapping equipment in use today.



VANGUARD PACKAGING FILMS DIVISION

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Vanguard CCL Highlights:

- ♦ Excellent gloss and clarity for retail appeal
- ♦ Strong durable seals on a wide variety of sealing systems
- ♦ High tensile strength and tear resistance for added toughness
- ♦ Consistent machineability on semi-automatic and automatic wrappers
- ♦ High percentage of shrink allows film to conform tightly to irregular shapes
- ♦ Corrosion free sealing with no fumes or wire build up
- ♦ Good resistance to burn though created by tunnel temperature variations
- ♦ Works well on a wide range of applications – multipacks, toys & games, baked goods, printed items
- ♦ Complies with FDA and USDA regulations governing direct contact food packaging

Typical Properties	ASTM Test Method	50G	60G	75G	100G
Minimum use temperature (F)		-40°	-40°	-40°	-40°
Haze (%)	D1003	2.3	2.8	3.1	3.4
Gloss (%)	D2457	130	125	125	120
Tensile strength (psi)	D882	15,000	15,000	15,000	15,000
Elongation at break (%)	D882	110	115	115	120
Stiffness modulus (psi)	D882	55,000	55,000	55,000	55,000
Tear strength (gms/ply)	D1922	8	10	13	15
Coefficient of friction (film to film:kinetic)	D1894	0.30	0.30	0.30	0.30
WVTR (gms/100si/24hrs)	F1249	1.7	1.4	1.2	0.9
Unrestrained shrink (%) @ 260°F	D2732	70	70	70	65
Shrink force @ 250°F (psi)	D2838	550	550	550	500
Impact strength (in-lbs)	D3420	8	10	13	15

This information represents our judgement based on tests performed, but Okura USA, Inc. assumes no liability whatsoever in connection with the use of this information or suggestions contained herein. They are given and accepted at the user's risk. We urge purchasers to conduct independent tests to determine final suitability for their specific application.