

## Description

Clysar® EV-HPG AF is a strong, clear, biaxially oriented, heat-shrinkable, anti-fog, polyolefin-based film. The film provides superior, fast-acting, anti-fog properties, achieving clear, condensation-free retail packages. The film has excellent stretch, recovery, toughness and tear resistance, and will not brittle with age. EV-HPG AF film is FSSC 22000 approved and microwavable per Clysar guidelines.

# Clysar® EV-HPG AF Films DATA SHEET

## Uses

Clysar® EV-HPG AF film is commonly used for fresh produce applications where ambient temperature variation creates problems with package condensation and fogging. Clysar® EV-HPG AF film provides the industry's fastest-acting anti-fog performance, creating clear, retail-ready packages. In addition, EV-HPG AF is a recyclable film, prequalified for Store Drop-off by How2Recycle®.

Clysar® EV-HPG AF film is suited to overwrap a wide variety of fresh vegetables and fruit, including individually packaged produce, pre-cut or unitized items and multi-packs. The film offers excellent strength and a tight protective barrier to protect products, manage moisture and maintain good-looking packages through distribution and retail.

Clysar® EV-HPG AF is designed for packages that will be refrigerated in the case or displayed at room temperature.

## Significant Features

### Sealing

- Compatible with all shrink sealing systems.
- Wide sealing temperature range.
- Seals easily even under less-than-optimum conditions.
- Seals at higher speeds than many other shrink films.
- Seals are thin and less likely to leak than ordinary polyolefin films.

### Shrinking

- Allows lower tunnel temperatures that can result in utility cost savings.
- Runs on wide variety of tunnels and shrinks under less-than-optimum conditions. It is not dependent on high air velocity to get good shrink.
- Achieves medium shrink force.
- Requires sufficient air evacuation for optimal package appearance.

### Standard Put-Ups

- Clysar® EV-HPG AF is available in 45 and 55 gauge films.
- Flat film is available in widths from 3" to 96".\*
- Folded film is available in widths from 6" to 48".\*

\*Contact your Clysar Representative to confirm specific requests.



With Clysar® EV-HPG AF film, produce packages are clear and retail-ready, delivering superior performance in the least amount of time.

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# Clysar®

## FDA/USDA Status

Clysar® films sold by Clysar, LLC, for food packaging use comply with U.S. Food and Drug Administration (FDA) requirements under the Federal Food, Drug and Cosmetic Act as amended. Clysar complies with FDA regulation 21 CFR 177.1520—Olefin polymers, allowing use for articles that contact food, except for articles used for packing or holding food during cooking.

## Use

Clysar, LLC, does not recommend using traditional heating or cooking methods for foods wrapped in Clysar® shrink films. For conditions specific to microwave cooking, please request documentation that is specific for your application through your Clysar representative.

## Disposal

Preferred options for disposal are: (1) Store Drop-off recycling; and (2) incineration with energy recovery.

## Storage

Storage below 32°C (90°F) is recommended. Prolonged exposure to temperatures moderately above 32°C (90°F) or brief exposure to temperatures well above 32°C (90°F) may cause difficulty in unwinding film.

For more detailed information on the safe handling of Clysar® films, a “Safety in Handling and Use” guide can be obtained from your Clysar representative.

## Summary of Properties

### Clysar® EV-HPG AF - Linear Footage Flat Film (Table 1)

Core I.D., in.	Roll O.D., in.	Footage Put Up	45 Gauge	55 Gauge
3	9.5	Single	11,660	9,540
6	11	Single	11,660	9,540
6	14	Double	23,320	19,080
6	18 ¾	Quad	46,640	38,160

### Clysar® EV-HPG AF - Linear Footage Folded Film (Table 2)

Core I.D., in.	Roll O.D., in.	Footage Put Up	45 Gauge	55 Gauge
3	9.5	Single	5,830	4,770
6	11	Single	5,830	4,770
6	14	Double	11,660	9,540
6	18 ¾	Quad	N/A	N/A

### Typical Properties of Clysar® EV-HPG AF (Table 3)

Property	ASTM Test Method	Unit	45 Gauge	55 Gauge
Haze	D1003	%	6.5	7.0
Gloss	D2457	GU	85	85
COF, Kinetic	D1894	gf	0.30	0.30
Shrinkage	D1204	% (area)	45	45
Shrink Force (100°C)	D2838	g/in	60	70
Stiffness Modulus	D882	kpsi	55	55
Tensile Strength	D882	kpsi	14	14
Elongation	D882	%	130	140
WVTR	F1249	g/100 in <sup>2</sup> /24 hr (37.8°C, 100% RH)	2.3	1.6
Oxygen Transmission	D3985	cc/100 in <sup>2</sup> /24 hr (23°C, 50% RH)	1,000	600
CO <sub>2</sub> Transmission	-	cc/100 in <sup>2</sup> /24 hr (23°C, 0% RH)	2,500	2,500



Note: These values are typical data for Clysar® EV-HPG AF shrink film and are not product release specifications, warranties or limiting specifications. Values are based on initial production and test runs during development of this film.



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The technical data contained herein are guides to the use of Clysar® films. The advice contained herein is based upon tests and information believed to be reliable, but users should not rely upon it absolutely for specific applications because performance properties will vary with processing conditions. It is given and accepted at user's risk, and confirmation of its validity and suitability in particular cases should be obtained independently. Clysar makes no guarantees of results and assumes no obligations or liability in connection with its advice. This publication is not to be taken as a license to operate under, or recommendation to infringe, any patents.

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see Clysar Medical Caution Statement, MCS\_02.