

## Description

Clysar® HPG (HP Gold) is a strong, clear, biaxially oriented, heat-shrinkable, crosslinked, polyolefin film.

# Clysar® HPG Films

DATA SHEET

## Uses

Clysar® HPG is used when outstanding optics and a tough, durable wrap with strong seals and excellent shrinkage are required. HPG is functional on manual, semi-automatic and automatic packaging machines. HPG is well suited for bundling applications.

## Significant Features

### Sealing

- Provides strong, durable seals with all sealing systems, including wires, knives and electrostatic overlap.
- Wide sealing temperature range.
- Requires little or no cooling dwell.
- Excellent seal integrity with virtually no pinholes when properly sealed.

### Shrinking

- Excellent burn-through resistance.
- Average available shrinkage.
- Higher shrink force provides better bundling capability.

### General

- Good tear resistance.
- High gloss, clarity and sparkle.
- Cleans up well on package.

### Standard Put-Ups

- Available gauges: 45, 60, 75, 100, 125 and 150.
- Flat film is available as Clysar® HPG in custom widths ranging from 1 3/4" to 98" in 1/4" increments. Contact your Clysar Representative for details.
- Folded film is available as Clysar® HPGF in 1/2" increments. Minimum width of folded film is 5". Maximum standard width of folded film is 42" for all gauges. Custom widths greater than 42" may be available.
- Surface treatment for improved hot slip is offered as Clysar® HPGS for flat film or Clysar® HPGFS for folded film.
- Print treatment is offered only on 60, 75 and 100 gauge flat film.
- Pre-perforated film in standardized pattern is available for 45, 60, 75 and 100 gauge on flat film as HPG-P and for 45, 60, 75 and 100 gauge on folded film as HPGF-P.



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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 heating or cooking foods in Clysar® films. High temperature, high speed, heat sealing of polyolefin shrink films will release small amounts of “smoke,” which should be removed by adequate ventilation in normal commercial practice.

## Disposal

Preferred options for disposal are: (1) recycling, SPI Code—Class 4; (2) incineration with energy recovery; and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled.

## 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 or the OSHA Material Safety Data Sheets can be obtained from your Clysar representative.

## Summary of Properties

**Clysar® HPG - Linear Footage Flat Film** (Table 1)

Core I.D., in.	Roll O.D., in.	Gauge					
		45	60	75	100	125	150
3	9 1/2	11,660	8,750	7,000	5,250	4,200	3,500
3	13	23,320	17,500	14,000	10,500	8,400	7,000
6	11	11,660	8,750	7,000	5,250	4,200	3,500
6	14	23,320	17,500	14,000	10,500	8,400	7,000
6	18 3/4	46,640	35,000	28,000	21,000	16,800	14,000

**Typical Properties of Clysar® HPG** (Table 2)

Property	ASTM Test Method	Unit	Gauge					
			45	60	75	100	125	150
Haze (avg)	D1003	%	2.0	2.5	2.5	3.0	3.0	3.0
Gloss at 20° (min)	D2457	GU	135	135	135	130	130	130
COF, Kinetic	D1894		0.20	0.20	0.20	0.20	0.20	0.20
Shrinkage, 102°C (216°F)* -- 10 min	D1204	% (area)	50	50	50	50	50	50
Shrink Force	D2838	g/in @ 100°C	85	130	145	160	200	240
Stiffness Modulus (avg)	D882	kpsi	60	60	60	55	55	50
Tensile Strength (avg)	D882	kpsi	15	15	15	15	15	15
Elongation (avg)	D882	%	130	145	150	160	160	170
Tear Strength (avg) (Elmendorf)	D1922	g	13	20	25	40	45	50
Spencer Impact	D3420	lbf	7	10	13	15	19	22
WVTR	E-96	g/100 in <sup>2</sup> /24 hr	2.1	1.5	1.4	1.0	0.9	0.8
Oxygen Transmission	D3985	cc/100 in <sup>2</sup> /24 hr	900	600	500	400	350	300

\*Film Temperature

Note: These values are typical data for Clysar® HPG shrink film and are not product release specifications, warranties or limiting specifications. Values are based on initial production and tests run 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.