

# Clysar HPG

## Description

Clysar® HPG (HP Gold) is a strong, clear, biaxially oriented, heat-shrinkable, cross-linked, linear low-density polyolefin film. Clysar HPGS is a hot slip version of the film.

## 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, semiautomatic and automatic packaging machines.

## 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.
- When properly sealed, 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

- Clysar HPG is available in six gauges: 60, 75, 100, 125, 150, and 200 as either single-wound or center-folded film.
- Flat film is available as Clysar HPG, print treated on one side as Clysar HPGT, or silicone coated for improved hot slip as HPGS.
- Flat film is available in widths from 4-68 inches in 1/4 inch increments
- Center-folded film is available as Clysar HPGF, or silicone coated for improved hot slip as HPGFS.
- Folded film is available in widths from 5-47 inches in 1/2 inch increments.
- Clysar VHG is the 50 gauge version of Clysar HP Gold. Clysar VHG is not available print treated.
- VHG Folded film is available in widths from 5-36 inches
- Available in standardized pre-perforated pattern or as plain film.
- Film is wound on 3- and 6-inch cores to the standard roll sizes as shown in Table 1.

**Table 1**  
**Clysar® HPG**  
**Linear Footage Flat Film**

Core I.D., in.	Roll O.D., in.	Gauge						
		50'	60	75	100	125	150	200
3	9 ½	10,500	8,750	7,000	5,250	4,200	3,500	2,625
3	13	21,000	17,500	14,000	10,500	8,400	7,000	5,250
6	11	10,500	8,750	7,000	5,250	4,200	3,500	2,625
6	14	21,000	17,500	14,000	10,500	8,400	7,000	5,250
6	18 ¾	42,000	35,000	28,000	21,000	16,800	14,000	10,500

<sup>1</sup> Clysar VHG is the 50 gauge version of HPG.

### FDA/USDA Status

Clysar films sold by Bemis for food packaging use comply with U.S. Food and Drug Administration (FDA) requirements under the Federal Food, Drug, and Cosmetic Act as amended. Bemis 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. This FDA compliance and a continuing guarantee from Bemis will meet USDA requirements for packaging meat and poultry products.

### Use

Bemis does not recommend heating or cooking foods in Clysar films. High temperature and high speed 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 Bemis Clysar films a “Safety in Handling and Use” guide and OSHA Material Safety Data Sheets can be obtained from your Bemis Clysar representative.

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

Property	ASTM Test Method	Unit	Gauge						
			50 <sup>1</sup>	60	75	100	125	150	200
Haze (avg)	D1003	%	2.0	2.5	2.5	3.0	3.0	3.0	3.5
Gloss at 20° (min)	D2457	(photocell)	135	135	135	130	130	130	120
COF, Kinetic	D1894		0.20	0.15	0.15	0.15	0.15	0.15	0.15
Shrinkage, 102°C (216°F)* -- 10 min	D1204	% (area)	50	50	50	50	50	50	50
Shrink Force	D2838	g/in @100°C	90	130	145	160	200	240	320
Stiffness Modulus (avg)	D882	kpsi	60	60	60	55	55	50	50
Tensile Strength (avg)	D882	kpsi	15	15	15	15	15	15	15
Elongation (avg)	D882	%	135	145	150	160	160	170	180
Tear Strength (avg) (Elmendorf)	D1922	g	15	20	25	40	45	50	95
Spencer Impact	D3420	in-lbs	8	10	13	15	19	22	30
WVTR	E-96	g/100 in <sup>2</sup> /24 hr	1.9	1.5	1.4	1.0	0.9	0.8	0.5
Oxygen Transmission	D3985	cc/100 in <sup>2</sup> /24 hr	790	600	500	400	350	300	250
CO2 Transmission	--	cc/100 in <sup>2</sup> /24 hr	3,000	2,500	2,300	1,600	1,400	1,200	1,000

<sup>1</sup> Clysar VHG is the 50 gauge version of HPG.

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 Bemis 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. Bemis 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 Bemis Medical Caution Statement, MCS\_01.