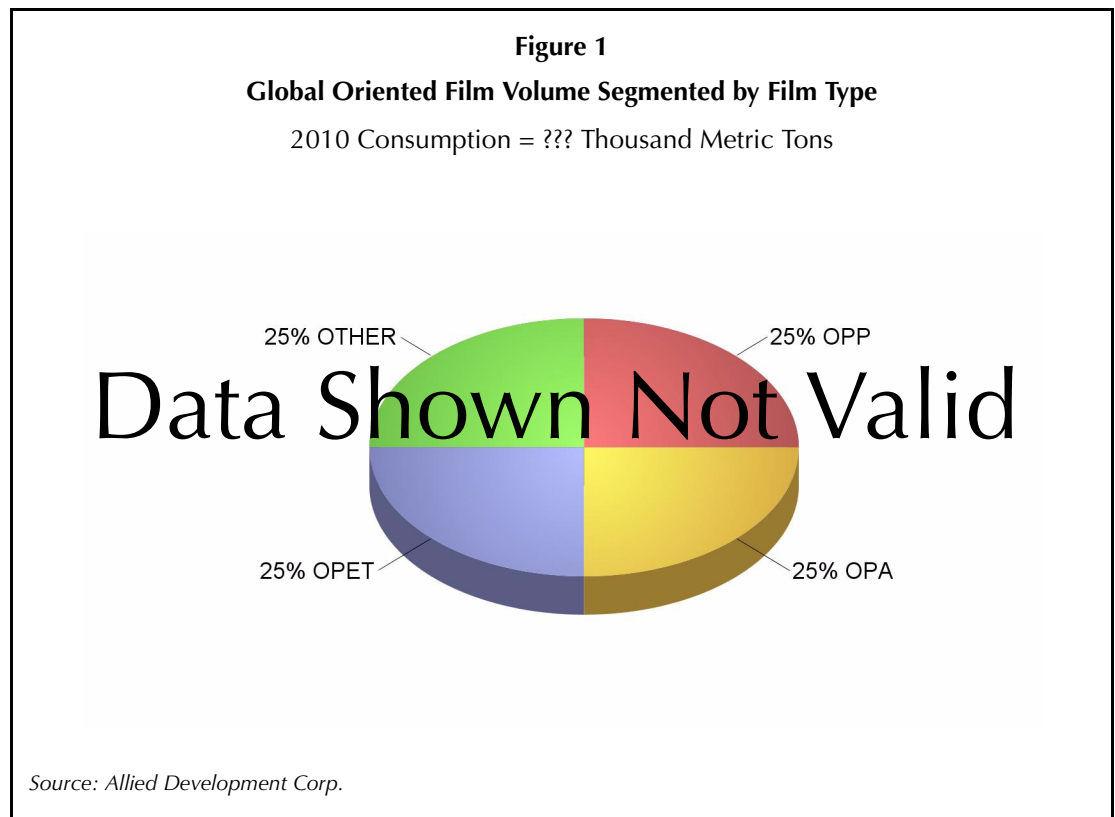


C. Markets

As just described, countries such as China and India are causing dramatic changes to the production base of the oriented films industry. In the Market section, we examine consumption, and we begin with consumption of all oriented films.

Global users consumed ??? metric tons of oriented film and sheet in the merchant market in 2010. Figure 1 provides total oriented film and sheet volume, segmented by film type.



OPP film holds the largest market share (???) in the oriented films industry (Figure 1). OPP film is relatively inexpensive and provides a high yield due to its low density. These economic advantages have driven its volume higher for decades.

The packaging market consumes almost all oriented nylon films, which are typically 15 to 20 microns in thickness. Orientation ratios of three times in both directions are typical.

2. OPA film suppliers

Twenty two (22) companies manufacture oriented nylon films, up from nine (9) in 2006. Compared to the OPP film and OPET film markets, better balance exists between supply and demand for OPA film, with much less new capacity added to the global market since 2006, and relatively fewer changes in the rankings of global suppliers.

Table 5 provides the global producers of oriented nylon, ranked by 2010 capacity. We profiled companies with capacity of ??? metric tons per year or more. These profiled companies account for ???% of global production capacity.

In addition, some of the lower volume OPA producers are profiled, because they produce large volumes of oriented films from other polymers.

Table 5
Profiled Producers of Oriented Nylon
(metric tons/yr)

| COMPANY NAME | REGION | 2006 CAPACITY | 2010 CAPACITY |
|-------------------------------------|--|---------------|---------------|
| Unitika Ltd. | Europe, Japan & Korea, Southeast Asia, North America | | |
| cfp Flexible Packaging S.p.A. | Europe | | |
| Changzhou Mingzhu Plastic Co. Ltd.* | China | | |
| Toyobo Co. Ltd. | Japan & Korea | | |
| Kolon Industries Inc. | Japan & Korea, Southeast Asia | | |
| Hyosung Corp. | Japan & Korea | | |
| Honeywell Specialty Films | North America, Japan & Korea | | |
| Mitsubishi Plastics Inc. | Japan & Korea | | |

Data Removed

7. OPET film volume in packaging segmented by end-use

Table 28 provides global OPET packaging film volume, segmented by end-use.

| End-use | 2005 | 2010 | CAGR | 2015 | CAGR |
|----------------|---------------------|------|------|------|------|
| Bakery | | | | | |
| Confectionery | | | | | |
| Condiments | | | | | |
| Meat | Data Removed | | | | |
| Pasta | | | | | |
| Other food | | | | | |
| Personal care | | | | | |
| Other non-food | | | | | |
| Total | | | | | |

Source: Allied Development Corp.

OPET film consumption is spread among many applications (Table 28). Unlike OPP films, where the salty snacks end-use commands over ???% of total OPP film volume, the largest single OPET end-use commands only ???% of total OPET film volume.

The OPET film characteristics that drive OPET's broad use include high temperature resistance, excellent dimensional stability, and surface characteristics that make it an excellent substrate for a variety of coatings.

Projection

Pouch manufacturers prefer OPET films for their high temperature resistance and dimensional stability (compared to OPP films). In the

5. OPLA film value segmented by end-use

Table 45 provides global OPLA film value, segmented by end-use.

| END-USE | 2005 | 2010 | CAGR | 2015 | CAGR |
|--------------|---------------------|------|------|------|------|
| Packaging | Data Removed | | | | |
| Labels | | | | | |
| Total | | | | | |

Source: Allied Development Corp.

For the period 2005 through 2010, OPLA film value growth of ???% per year (Table 41) exceeded volume growth of ???% per year (Table 40). For the period 2010 through 2015, OPLA film value growth of ???% per year will exceed volume growth of ???% per year. We examine the reasons value growth differs from volume growth in the following paragraphs.

Market forces

Historically, PLA resins and films have been promoted as having greater price stability due to the fact that they are manufactured from corn, compared to all other types of oriented films that are sourced from crude oil. The data validates this claim, as value growth and volume growth matched closely during the period from 2005 to 2010.

Product mix

In the future, we project film mix to generate value growth that exceeds volume growth, due to the market share gains of coated OPLA films.