



External E-Commerce in Commodity Plastics

Chemical Market Resources, Inc.

1120 NASA Rd.1, Ste 340, Houston, TX 77058

Tel: 281-333-3313; Fax:281-333-3361

For Further Information Contact:

Dr. Balaji B. Singh at Bsingh@CMRHouTex.Com

INTRODUCTION

The plastics industry, though smaller in size compared to several other commodity chemicals, undergoes more changes in terms of technologies and market opportunities than many others. This is what makes the plastics industry a fascinating to both participate in and analyze. Internet and e-Commerce have had and will have tremendous impact on the plastics industry. E-Commerce in general, has already undergone several growing (or rather birthing pains) in the plastics industry in general. Chemical Market Resources, Inc. a marketing research and strategic planning firm based in Houston, TX actively analyzes the impact of major trends that impact the Global polyolefin industry. This article is based on a recent paper we presented at the SPE RETEC Polyolefins 2001, held in Houston TX. The objective of this paper/presentation is to present an overview of the current status and future direction of the e-Commerce in plastics and some lessons based on related industries.

PLASTICS E-COMMERCE

E-Commerce has become a necessity for efficient organizational functioning of the plastics industry. E-Commerce is above all, a new way of doing business – not a new business. Looking back at the organizational experiences in the last two decades – we went through several new innovative tools for conducting the business – telex- overnight letters - fax –and emails. In all these developments, we always tended to keep our focus on the core business and used these developments to improve the efficiency of doing business. We never turned our attention away from the core business to put total focus on methodology – for instance, when fax machines came into the market, we never built departments to look at forming fax based organizations. However, Internet has provided us so many new possibilities that organizations enthusiastically embraced the idea of Internet based businesses, in the process allocating enormous resources to incorporating a “new approach” to doing the old business.

To differentiate and delineate their influences, we will divide up the Internet businesses into two types: (1) Internal E-Commerce - all the activity that will improve and streamline the internal process to develop, produce, deliver and optimize the products and (2) External E-Commerce – develop a new route to the

markets and optimize the current routes to the markets with the intention of increasing the sales.

The Internal E-Commerce includes the functions: (1) production planning, (2) purchasing coordination, (3) product design, (3) internal margin improvement, (4) customer service and (5) customer retaining. The overriding function of all these activities is to focus on the organization's internal operations to improve their effectiveness. These will result in improved profits with cost reductions. The internal E-Commerce will have major impact on the internal operations focused on profit enhancement. A historical perspective suggests the role of e-Commerce in the internal operations can be looked at as an extension of the inventory management, just in time production, enterprise resource planning activities. These activities essentially represent approximately 90% of the e-Commerce as it is practiced now or in future. The function of internal e-Commerce is not revenue enhancement – it is profit enhancement.

The External E-Commerce refers to activities related to product distribution to clients addressing the Product and Place issues. The overall objective is to increase the effectiveness of the sales process by: (1) improving the effectiveness of the existing channels and (2) where possible create new clients and opportunities. Organizations depended on all channels of distribution including distributors, resellers, recyclers and warehouses to get their products to: 91) help in sales, 92) get the product to the end users and (3) manage inventory. External E-Commerce provides yet another means of providing this function. The function of external e-Commerce is revenue enhancement and will account for 10% of the e-Commerce.

Even though the major portion of benefit was suppose to be internal, the organizations have spent more time and effort (labor and capital) in evaluating the external E-Commerce options. Most discussions in the marketplace are focused on the external E-Commerce. In the past any changes in the general issues involved incremental changes in the way we did business. E-Commerce on the other hand revolutionized the business to such an extent that it created considerable confusion in the industry. The organizations had to understand what role E-Commerce will play in their business as well as implement it in hopes not being left behind.

This has resulted in plastics organizations taking three approaches to external E-Commerce: (1) Take and equity stake in E-Commerce exchanges, auction houses and catalogues, (2) Participate in industry consortia and (3) develop own E-platforms with internal synergy. The strategy was implemented as a safety measure against time and developmental status. The external e-Commerce options became more publicized and popular because: (1) they followed on the coat tails of successful (?) consumer based platforms.. Focus was more on the IPOs, venture capitalists and “large company equity positions” rather than on the effectiveness of the business models.

CURRENT STATUS

The independent external e-Commerce sites are undergoing the transition to the negative side with losses. External e-Commerce sites have failed to understand the basic models and most of them were based on IPOs, venture capital and large company investments without strong fundamental business models. A recent literature database



search of the three most popular external e-Commerce sites resulted in 734 articles related to these organizations. Exhibit 1 presents the analysis of the types of news presented in these articles. Surprisingly major portion of the news was related to investments, IPOs, personnel changes and plans and very little is related to actual work and the successes in the market. This is quite contrary to the successful business models. The root cause of this confusion is the lack of understanding of the real impact of Internet and E-Commerce as a means of new business. All said and done, e-Commerce is just another new tool for effective business – not a new business. Most organizations missed the concept and fell in love with the E-Commerce without success.

External E-Commerce will have more impact on the way we do business than the quantity of business. Internal E-Commerce will have more internal benefits through improvement of internal operations of customer service, R&D, TS&D, Idea generation, customer tracking, which are just means to more business and not the ends.

The discussion from this point forward is limited to External ECommerce in polyolefins and plastics.

ARE PLASTICS CONDUCTIVE TO EXTERNAL E-COMMERCE?

So far, industry attempted to incorporate the general e-commerce business models to plastics industry. However, plastics share unique characteristics that may not be conducive to external E-Commerce. Based on extensive research the general characteristics of successful E-Exchange requires the following:

1. Low concentration of buyers - Wider choice of potential sales
2. High Number of dispersed suppliers - Wider choice of materials
3. High Number of Intermediaries – Higher number creates more comparison among suppliers and distributors
4. Standardized Products – Lack of product differentiation makes for easy decisions and easier transaction
5. High Number of Transactions/Customer – Repeat usage since marginal costs are negligible or non-existent
6. High Repeat Trades – Revenues directly related to sales effort
7. Customer Service Low/Non Existent – Less complications and transactions are easier to complete
8. Frequent Excess Capacity – Product availability becomes easy
9. Unpredictable Demand – Lack of transparency helps better trades
10. Regional Markets In Transition – Expansion of potential geographic and regions issues
11. Low Brand Name Impact/Same Brand – Helps in standardization

Exhibit 2 presents our analysis of the suitability of virgin plastics to external e-Commerce. The virgin plastics for the most part are not suitable for external e-commerce.

<i>Exhibit 2</i>	
<i>Do Virgin Plastics Meet the Requirements of Successful e-Exchange?</i>	
• Low Concentration of Buyers	✓
• High Number of dispersed Suppliers	✗ / ✓
• High Number of Intermediaries	✗
• Standardized Products	✗
• High Num. of transactions/Customer	✗
• High Repeat Trades	✗
• Customer Service Low/Non Existent	✗
• Frequent Excess Capacity	✗
• Unpredictable Demand	✗
• Regional Markets in Transition	✗
• Low Brand Name Impact	✗

Virgin plastics industry depends for the most part on the internal consumption and long term contracts for the sales. Less than 10% of the sales are based on spot and resellers. Since the products are commodities the order placement involves extensive negotiations on price fluctuations more so than supply of the actual material itself. The two factors that are most

important to the virgin plastics are customer specific grades and the extensive customer service. These two factors strengthen the bond between seller and buyer to the extent e-Commerce will have less impact on the overall sale.

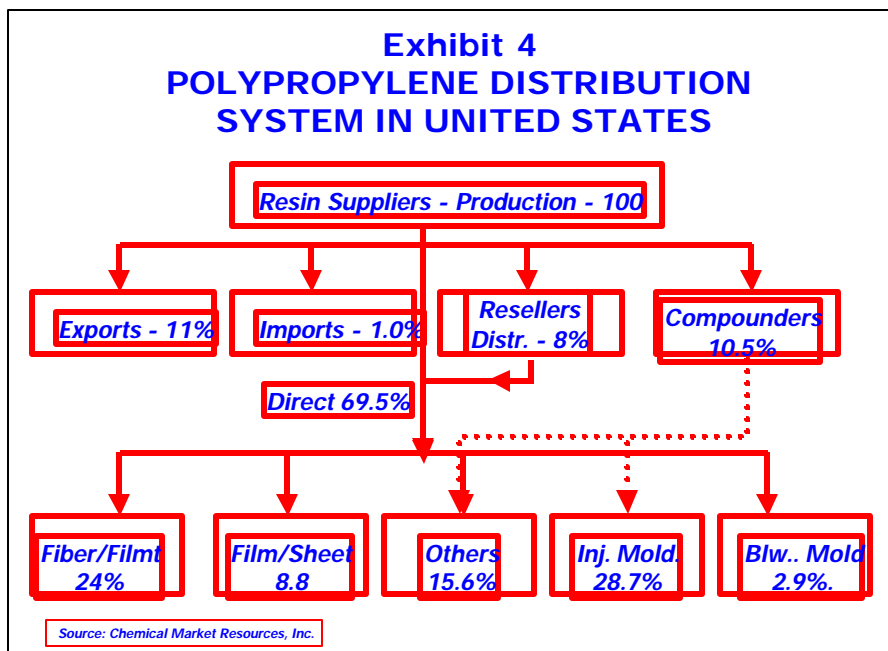
Exhibit 3 presents the suitability of scrap and off-grade plastics to e-Commerce. The scrap and off-grades meet the e-Commerce requirements very well because of: (1) the large number of intermediaries, (2) lack of customer service, (3) standard products – all scrap is same, (4) price as the major criteria for the sale. Scrap and off-grade also meet the requirements of global markets because someone in China can purchase scrap from the U.S. However, the overall influence of the scrap and recycle is minimal on the plastics industry.

Exhibit 4 presents the overall distribution system for polypropylene in the United States. Approximately 11% of the PP produced are exported (mostly to Canada and Mexico). Of the 89% distributed in the U.S 70% of it goes direct to the end users. Compounders

*Exhibit 3
Scrap/OffGrade/FloorSweep Polyolefins Meet the
Requirements of Successful e-Exchange*

- Low Concentration of Buyers ✓
- High Number of dispersed Suppliers ✓
- High Number of Intermediaries ✓
- Standardized Products ✓
- High Num. of transactions/Customer ✗
- High Repeat Trades ✗
- Customer Service Low/Non Existent ✓
- Frequent Excess Capacity ?
- Unpredictable Demand ✓
- Regional Markets in Transition ✓
- Low Brand Name Impact ✓

account for approximately 5% of the total PP distributed, with rest flowing through the resellers and spot distributors. Most commodity plastics present very similar situation.



As discussed earlier, external e-Commerce is not well suited for long-term contracts and internal consumption, the virgin plastics will be not very suitable.

CONSORTIA

COOPERATION OR POTENTIAL FOR COLLUSION?

Consortia represent an alternative way for the external E-commerce to the public and private exchanges. In principle, consortia are the loose knit organizations that can form a dedicated site/portal to provide information on their products and aggregate the major customers. Consortia provide the organizations a means of reaching the customers of common interest to provide them choices. For example, the automotive industry can host consortia of suppliers and present all their requirements on the consortium to provide an opportunity for suppliers. In the recent times, the consortia have become more popular than the pure dot com sites.

The most popular consortia in the plastics industry include: (1) Elastomer Solutions (AES, Bayer, Cabot, DSM, DuPontDow, Enichem, FlexSys, Polyone , Uniroyal and Zeon. (2) Elemica (Air Products, Ashland, Atofina, BASF, Degussa, Dow, DSM, Rohm & Haas, Shell, Solvay, Sumitomo, Vopak), (3) Omnexus (BASF, Bayer, Borealis, Dow, DSM, DuPont, Solvay, Celanese) and (4) Enerva (Albemarle, BDPE, Borden. Equistar,Ethyl, Lubrizol, Lyondell, Oxychem, Solutia, Diamond Shamrock).

The consortia are coming under a scrutiny by the FTC because of two reasons: (1) the concept is new and not completely understood and (2) the potential for collusion. FTC is currently in the process of studying the concept of exchanges currently promoted by all the industries including chemical industry. The primary current target of FTC now is on the Airlines, Heavy Equipment Manufacturing and meat packaging. At issue is whether such consortia by banding together are becoming monopolistic and be able to take advantage of a new market situation to the exclusion of smaller competitors.

The areas of conflict do exist and are harder to monitor. The individual organizations who are part of the consortia may be able to give all kinds of assurances, but from FTC's point of view the questions are more related to: (1) how do you define compliance?, (2) what is considered misuse? (3) If we do agree it was a misuse, how do we punish? and how do you prevent future abuse?. Without answers to these, no regulation can be effective.

The exchange/consortia members may knowingly or unknowingly collude to set prices and/or allocations. The price collisions can occur in various ways without involving the actual price issue discussions. For example, if two of the leading members of the consortium developed materials better than some of the non-members, they could agree on when the material will be introduced and how much, without ever discussing the price issues and influence the market/price at their convenience. The exchange members could exclude certain members based on either: (1) subscription price (minimum price to get in), (2) type of products (metallocene vs. non metallocene), (3) size of potential customers, (4) level of distribution etc., Thus mere lack of membership in the select group could impact the cost of doing business for the non-members and restrict them from competing on an equal footing.

These and other related issues have to be addressed in detail before Consortia become an effective means of external E-Commerce. The overall goal of FTC in this, is not so much to regulate the industry, but to provide a level playing field for all the players and prevent re-inventing the wheel. FTC is as new to this field as are the consortia members and the ultimate actions should benefit everyone including the final customers.

INDIVIDUAL COMPANY SITES FOR EXTERNAL E-COMMERCE

The organizations are realizing the importance of internal e-Commerce vs. External e-Commerce and are preparing to face the issues. The organizations are developing their own sites that are focused 90% on internal efficiency improvement and 10% external e-Commerce. The classic examples are from GE Plastics, Dow Chemical Company, Eastman Chemical Company and Oxychem. Individual company sites, will be the most effective means of external e-Commerce in future because: (1) they are extensions of the internal e-Commerce strategies, (2) provides organizations an opportunity to extend them to the selected external sites. (3) the loyal customers of the organization can be provided information tailor made to them and (4) the organizations will be in total control of their sites.

CONCLUSIONS

The e-Commerce, an outgrowth of Internet combined with the unprecedented growth in computer hardware technology is here to stay. e-Commerce will affect every aspect of every business including the plastics industry in the way in which the future business is conducted. The emergence of E-Commerce in plastics industry in the past five years created a lot of uncertainty in the industry due to its complexity and far reaching impacts.

Because of its involvement, External E-Commerce had received more popularity than the internal e-Commerce. To reduce the uncertainty of participation, organizations chose to participate in the market in three ways: (1) internal e-Commerce platform development, (2) equity position in the independent platforms and (3) participation in consortia. Our analysis suggests, internal e-Commerce is the most effective means of e-Commerce compared to equity participation and consortia.