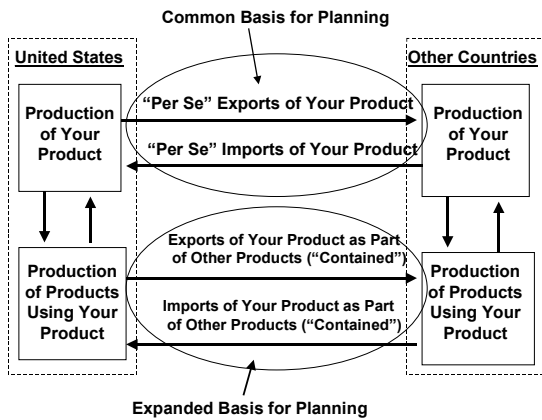




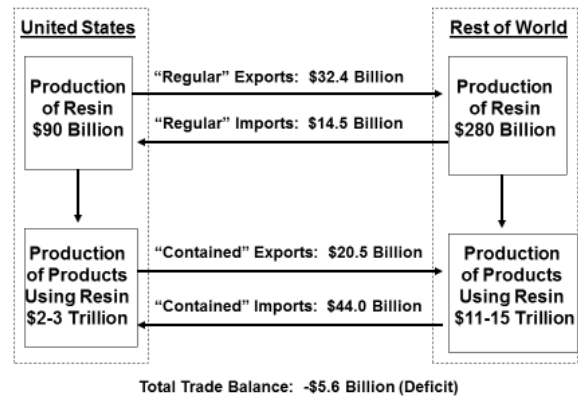
# THE TRUE U.S. TRADE BALANCE IN PLASTIC RESINS: HDPE, LDPE, LLDPE, POLYSTYRENE, POLYPROPYLENE, PVC, ABS/SAN, POLYCARBONATE AND EPOXIES, 1997 - 2015

This unique analysis addresses “contained trade” and “per se” trade, providing a comprehensive picture of resin movement

## INTERNATIONAL TRADE IN YOUR PRODUCT



## U.S. RESIN FLOWS, 2015

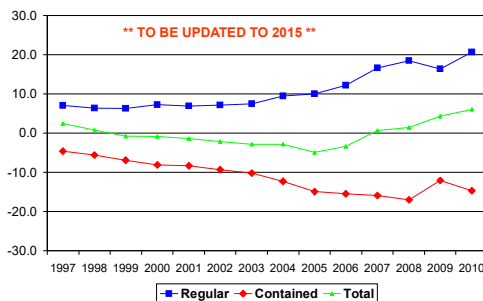


Executives commonly base planning decisions on “per se” trade data (reported imports and exports in their company’s actual products), without realizing that they are only seeing half the picture. They are missing trade in goods that “contain” their company’s products. Trends in “contained” trade are often more important to the future of their company than trends in “per se” trade.

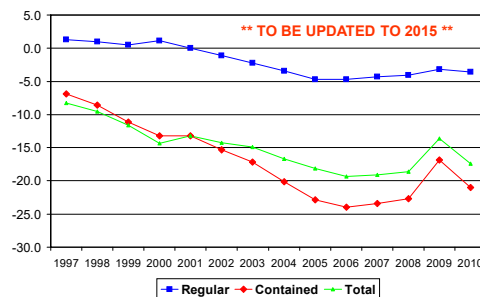
## This New Information Will Help Your Company Plan by:

- (1) showing your industry’s true trade balance, by resin;
- (2) identifying the downstream industries that are most and least vulnerable to contained trade back-flows;
- (3) indicating how badly your business is being impacted;
- (4) anticipating pricing pressures from affected customer segments;
- (5) helping you decide how much support to give to present customers;
- (6) pinpointing opportunities to supply the overseas industries and countries that are taking over your downstream markets;
- (7) providing insights and data to guide industry-wide efforts to reverse negative trends.

**TRADE BALANCES IN RESIN**  
(BILLIONS OF DOLLARS)



**TRADE BALANCES IN PLASTICS PRODUCTS**  
(BILLIONS OF DOLLARS)

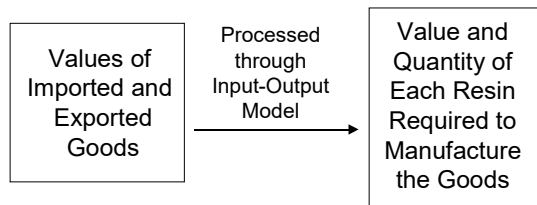




## The Probe Approach: U.S. Trade Data Analyzed with an Input-Output Model

Probe starts with data on U.S. domestic export value on an FAS basis and the value of U.S. imports for consumption on a landed duty paid basis, for approximately 470 product categories, defined by 6-digit NAICS code. The model computes the normal “per se” trade balance of the U.S. in each resin category individually with 236 trading-partner countries. (Per se means trade in the resin “as is,” not including trade that is contained in other products.) Probe then uses a 388-sector input-output model to determine how much of each resin was used to make, package or ship every product. This tells the user, for instance, that the cars or TV sets that are being shipped to the U.S. contain so much HDPE, so much polypropylene and so much PVC, etc. A simplified depiction of the Probe model and sample output can be seen in the following diagram:

### INPUT-OUTPUT METHODOLOGY



### DATABASE

- 470 Products and Services
- 10 Resin Categories
- 236 U.S. Trading Partner Countries
- Annual Dollar Values 1997-2015

### MODEL

- Proprietary Input-Output Model
- User Selects the Countries and Products
- Output Data on Excel™ Spreadsheets

The following sectors are included in the model (the number in parentheses represents the number of products or services\* that fall within the sector):

- |   |   |
|---|---|
| Agriculture, Forestry & Fisheries (18)  | Other Machinery Manufacturing (17)            |
| Energy & Mining (11)                    | Electronic Components & Equipment (11)        |
| Utilities (3)                           | Instruments (8)                               |
| Construction, Maintenance & Repair (11) | Household Lighting & Appliances (8)           |
| Food Processing (39)                    | Electrical Equipment (11)                     |
| Beverages & Tobacco (7)                 | Transportation Equipment (18)                 |
| Textiles & Apparel (20)                 | Furniture & Cabinets (13)                     |
| Wood Products (12)                      | Medical & Dental Equipment (5)                |
| Pulp & Paper (12)                       | Other Manufacturing (10)                      |
| Printing (6)                            | Transportation & Delivery Services (9)        |
| Petroleum Refining (5)                  | Retail Trade (1)                              |
| Chemicals (24)                          | Publishing & Media (12)                       |
| Plastic & Rubber Products (10)          | Finance & Insurance (7)                       |
| Ceramics & Refractories (9)             | Professional & Technical Services (19)        |
| Non-Metallic Minerals (12)              | Support Services (9)                          |
| Iron, Steel & Products (5)              | Other Business Services (8)                   |
| Non-Ferrous Metals (13)                 | Education, Health Care & Social Services (10) |
| Metal Fabricating (35)                  | Amusement, Gambling & Recreation (7)          |
| Industrial Machinery (13)               | Other Services (15)                           |
| Commercial & Service Machinery (9)      | Private Households (1)                        |
| Molds & Metal Working Machinery (6)     | Government (6)                                |

\* A complete list of the 454 products and services can be viewed at [www.ProbeEconomics.com/TradeList](http://www.ProbeEconomics.com/TradeList).



**DELIVERABLES**

For each of the 10 resin categories selected, the following information is provided:

An Adobe™ pdf file containing a short report including:

- Graphs of Per Se and Contained Trade in the Resin Category, in Tons
- Identification of the Countries and Products that Account for Most Contained U.S. Imports and Exports
- Discussion of Trade Trends and their Rationale

Two Excel™ files containing twenty-five (25) sheets between them -- most figures in dollars, some in tons:

- Per Se Imports, Exports and Net Exports of Resins and Containing Products, by Country, Ranked (7)
- Contained Exports, Imports and Net Exports by Country, Totaled and Ranked (6)
- Contained Exports, Imports and Net Exports by Type of Containing Product, Ranked (7)
- Graphs (4) and Regional Totals (1)

Special runs requested by the client: Excel™ files for up to two (2) individual countries or regions (dollars only)

The following are excerpts from two of the tables (data will go to 2015):

**U.S. Contained Net Exports by Country**  
Millions of U.S. Dollars of Resin X Contained (Totals Are Also Expressed In Tons)

<u>Country</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Algeria	0.0	-0.4	-2.9	-5.1	-6.2	-5.0	-10.8	-11.0
Andorra	0.5	0.5	0.0	0.1	0.0	0.0	0.0	0.0
Angola	-2.0	-1.0	-0.8	-1.2	-0.8	-1.0	-1.1	-1.1
Anguilla	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Antigua Barbuda	0.1	0.1	0.1	0.4	0.1	0.1	0.2	0.2
Argentina	26.0	26.1	20.7	23.8	20.7	7.6	11.6	13.5
(228 More Countries are Included. List Can Be Sorted and Ranked.)								
World Total, \$Millions	322.5	117.1	-60.3	-57.0	-111.2	-200.6	-301.8	-334.2
World Total, Thousand Tons	239.8	82.3	-39.0	-47.0	-99.2	-182.7	-254.0	-266.1

**U.S. Contained Net Exports by Product (Ranked, Biggest 2004 Deficit on Top)**  
Millions of U.S. Dollars of Resin X Contained (Totals Are Also Expressed In Tons)

<u>Containing Product</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
336111 Automobiles and Light Duty Motor Vehicles	-105.4	-120.7	-145.3	-163.5	-156.3	-161.7	-160.0	-168.6
339932 Games, Toys, and Children's Vehicles	-68.3	-73.0	-77.2	-81.3	-92.4	-101.0	-93.6	-96.8
334310 Audio and Video Equipment	-42.5	-47.2	-57.2	-69.0	-65.0	-77.5	-82.6	-85.0
326199 All Other Plastics Products	2.4	4.0	2.0	8.2	-9.1	-27.8	-45.2	-51.9
325110 Petrochemicals	-13.0	-12.9	-17.8	-34.0	-28.1	-32.0	-39.6	-41.3
211111 Crude Petroleum and Natural Gas	-17.3	-12.3	-15.0	-26.7	-25.9	-26.0	-37.0	-39.2
321219 Reconstituted Wood Products	-10.0	-16.5	-22.4	-20.8	-19.3	-21.4	-34.2	-36.6
339931 Dolls and Stuffed Toys	-36.1	-40.6	-40.0	-38.4	-34.6	-33.7	-34.0	-34.7
(446 More Products are Included.)								
World Total, \$Millions	322.5	117.1	-60.3	-57.0	-111.2	-200.6	-301.8	-350.2
World Total, Thousand Tons	239.8	82.3	-39.0	-47.0	-99.2	-182.7	-254.0	-287.8



**PROBE ECONOMICS LLC**

**ABOUT PROBE**

**Probe Economics LLC** has provided industry forecasting and consulting services since 1976. Probe combines state-of-the-art industry models with many years of industry experience. Our professionals have held senior operating, staff or teaching positions in industry, government, academia and consulting. For more information, visit our website, [www.probeeconomics.com](http://www.probeeconomics.com).

**ORDER FORM**

\_\_\_\_\_ **Analysis of Resin Categories** (Excel™ and pdf Files) -- \$1,800 for the first resin category, \$1,500 for each additional category. Please select:

- \_\_\_\_\_ HDPE      \_\_\_\_\_ LDPE      \_\_\_\_\_ LLDPE      \_\_\_\_\_ Polypropylene      \_\_\_\_\_ PVC
- \_\_\_\_\_ Polystyrene      \_\_\_\_\_ ABS/SAN      \_\_\_\_\_ Polycarbonate      \_\_\_\_\_ Epoxies      \_\_\_\_\_ Other

Total Amount Due: \_\_\_\_\_ (Add appropriate sales tax for New York State locations)

\_\_\_\_\_ Please provide me information about the following special model runs (on individual countries or regions, for instance), other sector groupings, or other data and services:

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Company _____	Phone No. _____
Address _____	Fax No. _____
E-mail _____	Signature _____

\_\_\_\_\_ Check enclosed (U.S. Dollars on U.S. Bank)

\_\_\_\_\_ Bill me      \_\_\_\_\_ Wire transfer (Ask for instructions)      \_\_\_\_\_ Charge my Credit Card:

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