

**2005-2007 North American
Market Study
For Adhesives and
Sealants
With a Global Overview
2006 Edition**



THE ADHESIVE AND SEALANT COUNCIL, INC.

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III. DEFINITIONS
THE ADHESIVE AND SEALANT COUNCIL
INC.

ADHESIVES - MARKET SEGMENTS

Paper, Board and Related Products

- **Converting/Packaging** (case and carton manufacture; paper products, bags, envelopes; tube winding; polyethylene bags; flexible packaging, etc.)

Excluded: Binding agents for the manufacture of corrugated board

- **Dry Lamination** (film-to-film, film-to-foil, film-to-paper, etc.)
- **Wet Lamination** (foil-to-paper)
- **High-Gloss Laminating for Graphic Arts** (OPP-to-paper/cardboard, cellulose, acetate-to-paper/cardboard; remoistenable, gummed tapes, labels, stamps; tissues and towels; sterilized medical packages; case and cardboard carton sealing; labeling cans, bottles and other containers; wrapping of foods, etc; cigarettes manufacture; etc.)
- **Bookbinding, Graphic Art Industry** (integral binding of paperback books, edition-bound books, magazines, catalogues, directories, etc.)
- **Nonwoven Fabrics** (construction of disposable diapers; feminine hygiene products; incontinence products; surgical gowns, etc.)
- **Pressure Sensitive Products** (labels, tapes, decals, signs, stamps, transfer films, etc.)

Transportation

- **Passenger Cars/Light Trucks Assembly and Components** (OEM)
- **Repair and Maintenance** (aftermarket)
- **Trucks and Buses** (OEM)
- **Bicycles and Recreational Vehicles** (caravans)
- **Aircraft/Aerospace**

- **Railway** (including light rail vehicles-tram)
- **Shipbuilding and Offshore**

Footwear and Leather

- **Footwear** (soling/sole attaching, lasting, box toes and counters, other applications, repair aftermarket)
- **Leather Goods** (handbags, travel goods, purses, etc.)

Consumer/Do-It-Yourself (Retail)

- **Household; Do-It-Yourself** (school, office; all-purpose glues; contact adhesives; super glues, wood glues, two-component glues; hot melt sticks, etc.)

Building/Construction/Civil Engineering/Craftsmen

- **On-Site Applications** (for new work, repair, maintenance, and renovations including flooring, wall coverings, ceiling attachment of sandwich panels, wooden subflooring, etc.)
- **Civil Engineering** (bridges, etc.)
- **Off Site Applications**
- **Factory Assembled Parts** (roof trusses, wall sections, laminated beams, etc.)
- **Prefabricated Houses**
- **Sandwich Panel Manufacture**

Woodworking and Joinery

- **Cabinet making** (joinery)
- **Furniture Manufacture** (high pressure laminate; edge gluing/banding; veneering; general assembly; etc.)

- **Window Frames, Door Manufacture**
- **Upholstery**

Excluded: Primary wood bonding (forest products) binding agents for producing (particle board, chipboard, medium density fiberboard, hardboard), plywood

Assembly Operations/Other

- **Appliances and Electrical/Electronic**
- **HVAC**
- **Fabric/apparel** (textiles, foam)
- **Medical Applications**
- **Sports Equipment and Toys**
- **Abrasives, Filters**
- **Other** (all other adhesives not included in any market segments or application sectors listed above)

Excluded: Binder agents for foundry sand and adhesives/coatings for rug backing (carpets)

ADHESIVES - PRODUCT CATEGORIES

Adhesives Based on Natural Polymers

- **Vegetable Adhesives** (dextrins and starches)
- **Protein Adhesives** (casein and blood, fish, soybean, milk albumen, etc.)
- **Animal Glues** (hides, bones, etc.)

Excluded: Adhesives raw material base; natural rubber

Polymer Dispersion/Emulsion Adhesives

- **Vinylacetate Polymers and Copolymers (PVAC)**
- **Ethylene Vinyl Acetate Co- and Ter-polymers**
- **Acrylics**
- **Styrene-Butadiene Rubber (SBR)**
- **Other Synthetic Rubber Lattices**
- **Natural Rubber Latex**
- **Polyurethane (PUR, PUD)**
- **Other**

Hot Melt Adhesives (including moisture-cure types)

- **Polyolefin (PE, PP, APP)**
- **Ethylene Vinyl Acetate (EVA)**
- **Polyamide (PA)**
- **Polyester, saturated (SP)**
- **Styrene Block Copolymers (e.g., SBS, SIS, SEBS)**
- **Polyurethane (Thermoplastic, plus moisture-curing)**

- **Acrylic**
- **Other**

Solvent Based Adhesive Systems

- **Polychloroprene (CP)**
- **Polyurethane (PUR)**
- **Natural and Synthetic Rubbers**
- **Acrylic**
- **Other**

Reactive Adhesive Systems (includes single and two-part thermoset plus UV/EB)

- **Epoxide (EP)**
- **Polyurethane** (including moisture-curing types)
Excluded: Hot melt types (previously reported above)
- **Polyester, unsaturated (UP)**
- **Acrylics** (including cyanoacrylate, dimethacrylate/anaerobics; methacrylate, SGA structured acrylic)
- **Formaldehyde Condensates** (phenolic, urea, melamine, resorcinol)
Excluded: Uses as binders in the manufacture of particleboard (chipboard, MDF, OSB, hard board) and in the manufacture of plywood
- **Other**

Adhesives Based on Water-Soluble Polymers

- **Polyvinyl Alcohol**
- **Cellulose Ethers**
- **Methylcellulose**
- **Carboxymethylcellulose**
- **Polyvinylpyrrolidone**

Other Adhesives

- **General** (all other adhesives not included in any categories listed above)

SEALANTS - MARKET SEGMENTS

Construction

- **Construction and Renovation** (residential, commercial, industrial, mobile/prefab home, metal buildings, roofing, etc.)
- **OEM and/or Maintenance Applications** (involving subcomponent fabrication, e.g., countertops, prefabricated trusses, curtain walls)
- **Insulating Glass, Glazing** (OEM, factory glazing, in-house glazing, etc.)
- **Heavy Construction** (highways, airfields, bridges, tunnels, etc.)

Transportation

- **Passenger Cars/Light Trucks Assembly and Components** (OEM, glazing, body sealants, thread locking, etc.)
- **Trucks, Buses, Trailers** (OEM, glazing, body sealants, etc.)
- **Repair and Maintenance** (aftermarket including glazing, body sealants, gasketing, etc.)
- **Commercial and Recreational Watercraft** (OEM, glazing, body sealants, etc.)
- **Aircraft/Aerospace** (glazing and body sealants, private, commercial)
- **Railway** (including light rail vehicles/mass transit, subcomponent fabrication)
- **Ships** (primarily engine and equipment bedding plus LNG tanks)

Consumer/Do-It-Yourself (Retail)

- **Household, Do-It-Yourself** (includes caulks or sealants intended for retail sale in packages containing 5 gallons or less)

Note: In some countries, this segment includes purchases by tradesmen of five or less employees.

Assembly/Other

- **Appliances** (e.g. refrigerators and freezers, HVAC)
- **Electronic Equipment Assembly**
- **Other** (caulks, sealants not included in market segments or applications listed above)

SEALANTS - PRODUCT CATEGORIES

Oil-Base Caulks

Latex Acrylic Sealants (includes “siliconized” versions)

Polyvinyl Acetate Caulks

Solvent Acrylics

Butyls

- **Butyl Rubber, Polyisobutylene**
- **Solvent-Release Sealants**
- **Deformable Preformed Tapes**
- **Hot Applied Sealants**
- **Gun-Dispensable and Pumpable Sealants**

Polysulfides

- **Mercaptan-Terminated Polymers**
- **Modified Polysulfide**
- **Polythioether Polymer**

Urethanes

- **One-Part, Two-Part** (manually mixed, field pigmentable)
- **Two-Part** (mechanically meter-mixed)

Modified Silicones

- **Polyether Backbone** (includes “MS” polymers, polymers cross linked with silane cross linkers, typically less than 5% of the total, and silicone urethane combinations)

Excluded are “siliconized” water-based products.

Silicones

Other

- **Other Caulks, Sealants** (not included above)
This can include processed-formulated bitumens and PVC body sealants.

TERMINOLOGY, UNITS AND CONVERSION FACTORS

The data reported in this study relate to **wet formulated adhesives and sealants demand in pounds** as used. All figures show data shares as **pounds of demand** unless otherwise specifically noted.

- **Value** is reported in million U.S. dollars and reflects the manufactured cost and/or price “at the shipping dock”. In nearly all cases, estimates are used.
- The units of measurement consist of **metric tons** and **pounds**:
1 metric ton = 2204 pounds
- The average currency **exchange rates** used for the year 2005 to determine the value:
1 US\$ = \$___ Canadian
1 US\$ = ___ Mexican Pesos
1 US\$ = ___ Euro
1 US\$ = ___ Japanese Yen
1 US\$ = ___ Chinese Yuan
- **AGR** = Average Annual Compounded Growth Rate
- **Rounding**: all data have been carried to one decimal place, which may result in addition differences of ± 0.1 .

HARMONIZED CODES

The following were used for searching import/export data.

HS Number

3005.000	Adhesive dressings
3506.000	Glues and adhesives based on rubber and plastics
3919.000	Transparent tapes
4811.000	Gummed paper tapes
4823.000	Adhesive tapes
6404.000	Footwear
7616.000	Laminating adhesives and laminated goods

SIC Code

2891.000	Adhesives and sealants
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SAMPLE

IV. NORTH AMERICA

SAMPLE

**Table 1:
North America Demographic Data**

North America	2005		2005 Adhesive & Sealant Market			Per Capita Average	
	Population Millions	GDP \$ billion	Million Pounds	Thousand Metric Tons	\$ Value	Pounds	Kg
United States							
Canada							
Mexico*							
Total							

* includes Maquiladora demand

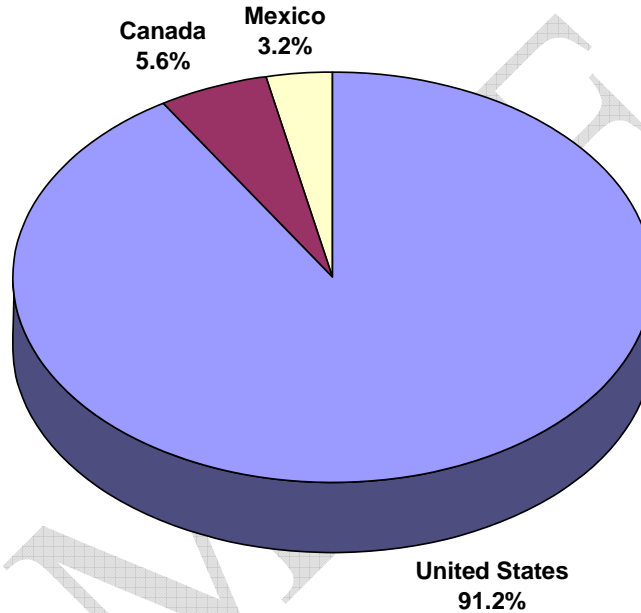
Source: U.S. Department of Commerce/ DPNA International, Inc.

**Table 2:
North America Adhesive and Sealant Market Projected Demand – 2005-2007**

Million Pounds	
2005	
2007	
AGR: ___%	

The market share for each country is shown in the following chart.

**Figure 1:
North America Adhesive and Sealant Industry
2005 Percent Market Share**

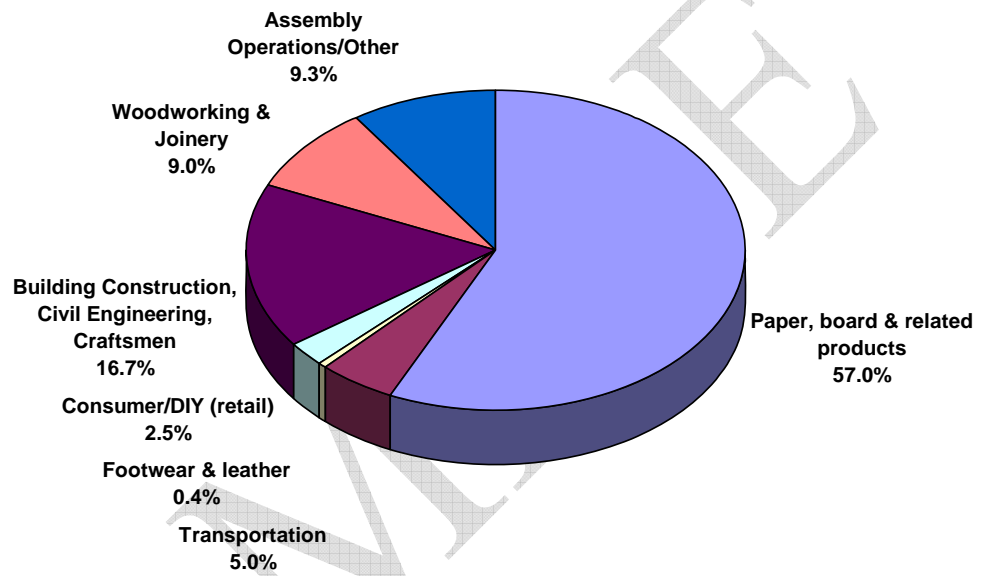


North America Adhesive and Sealant Demand: _____ million pounds
U.S. Dollar Value: \$_____ million ♦ `05-`07 Annual Growth Rate __%

The following charts and tables show share of demand for adhesives and sealants by market segments and product categories.

ADHESIVES

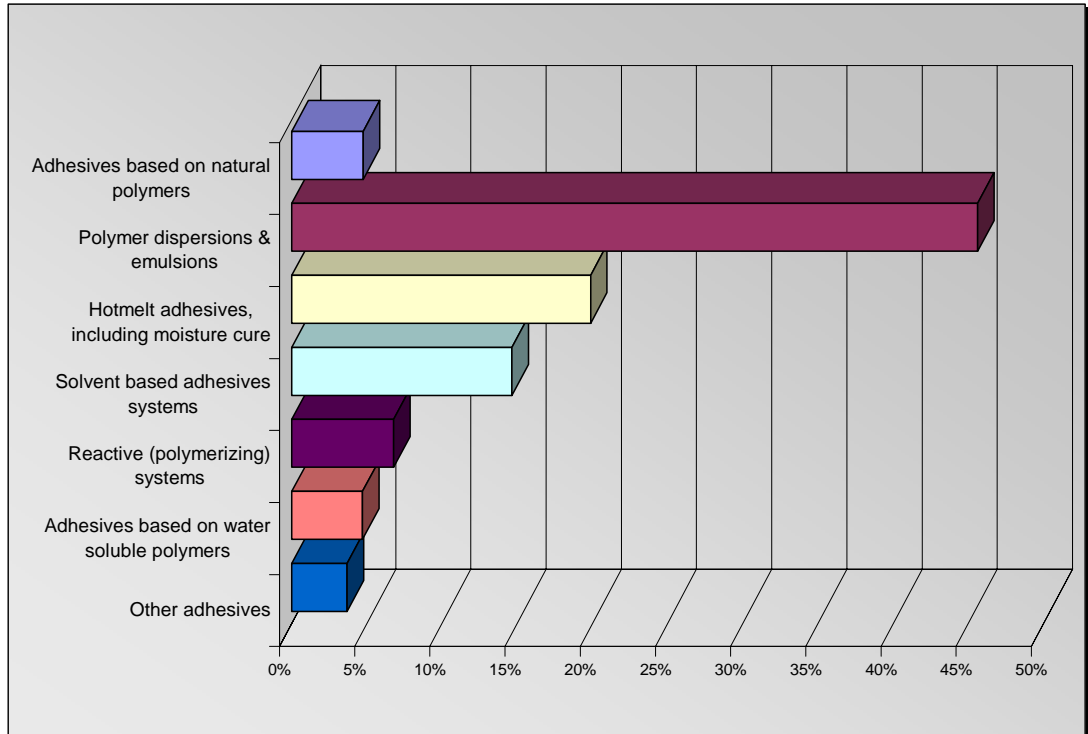
**Figure 2:
2005 North American Share of Demand by Market Segments –
Adhesives**



North American Adhesive Demand: _____ million pounds ♦

U.S. Dollar Value: \$ _____ million ♦ '05-'07 AGR ___%

**Figure 3:
2005 North American Share of Demand by Product Category -
Adhesives**



North American Adhesive Demand: _____ million pounds ♦

U.S. Dollar Value: \$ _____ million ♦ '05-'07 AGR ____%

**Table 3:
Estimated 2005 Data for the North American Adhesives Market -
U.S. \$000,000**

Market Segments / Product Categories		I	II	III	IV	V	VI	VII	Totals
		Paper, Board and Related Products	Transportation	Footwear and Leather	Consumer/DIY (retail)	Building Construction, Civil Engineering,	Woodworking and Joinery	Assembly Operations/ Other	
A	Adhesives based on natural polymers								
B	Polymer dispersions and emulsions								
C	Hot melt adhesives including moisture-cure types								
D	Solvent based adhesive systems								
E	Reactive (polymerizing) systems								
F	Adhesives based on water-soluble polymers								
G	Other adhesives								
	Totals								

Source: DPNA International, Inc.

**Table 4:
Estimated 2005 Data for the North American Adhesives Market -
Millions of Pounds**

Market Segments / Product Categories		I	II	III	IV	V	VI	VII	Totals
		Paper, Board and Related Products	Transportation	Footwear and Leather	Consumer/DIY (retail)	Building Construction, Civil Engineering,	Woodworking and Joinery	Assembly Operations/ Other	
A	Adhesives based on natural polymers								
B	Polymer dispersions and emulsions								
C	Hot melt adhesives including moisture-cure types								
D	Solvent based adhesive systems								
E	Reactive (polymerizing) systems								
F	Adhesives based on water-soluble polymers								
G	Other adhesives								
	Totals								

Source: DPNA International, Inc.

**Table 5:
Estimated 2005 Data for the North American Adhesives Market by
Country - U.S. \$000,000**

	Market Segments	United States	Canada	Mexico	Totals
I	Paper, Board and Related Products				
II	Transportation				
III	Footwear and Leather				
IV	Consumer/DIY (retail)				
V	Building Construction, Civil Engineering, Craftsmen				
VI	Woodworking and Joinery				
VII	Assembly Operations/ Other				
	Totals				

Source: DPNA International, Inc.

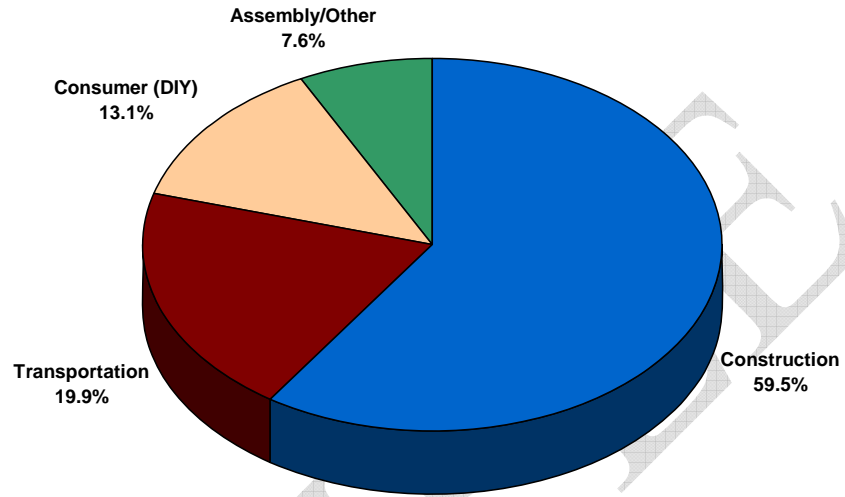
**Table 6:
Estimated 2005 Data for the North American Adhesives Market by
Country - Millions of Pounds**

	Market Segments	United States	Canada	Mexico	Totals
I	Paper, Board and Related Products				
II	Transportation				
III	Footwear and Leather				
IV	Consumer/DIY (retail)				
V	Building Construction, Civil Engineering, Craftsmen				
VI	Woodworking and Joinery				
VII	Assembly Operations/ Other				
	Totals				

Source: DPNA International, Inc.

SEALANTS

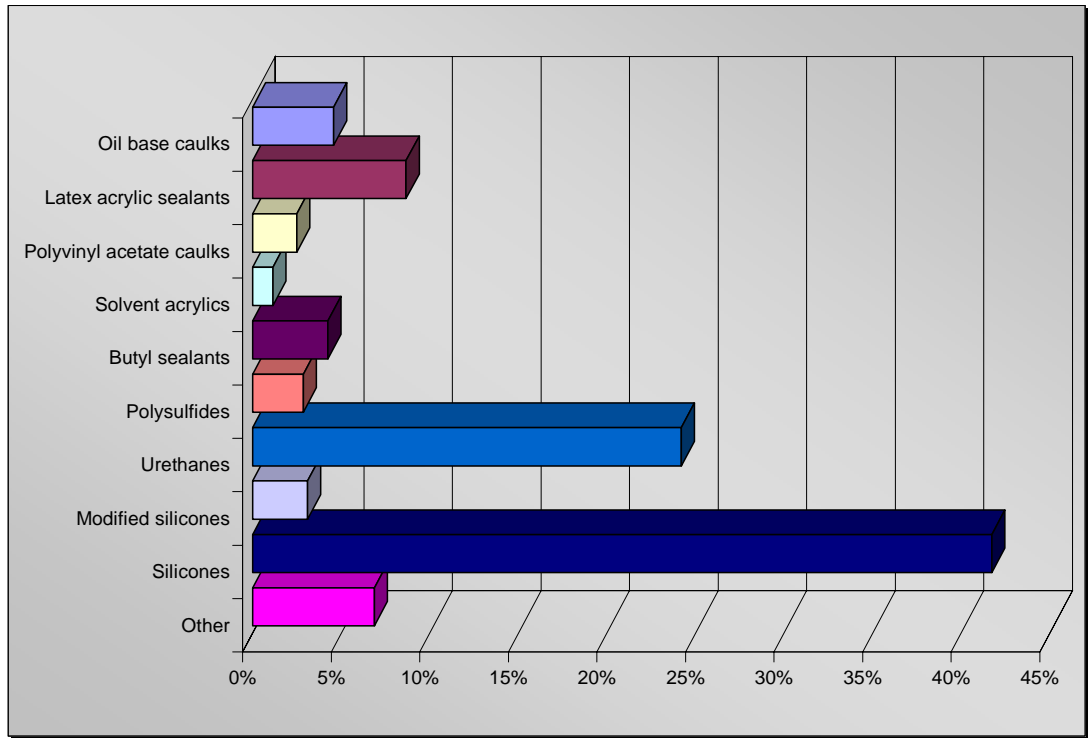
Figure 4:
2005 North American Share of Demand by Market Segments – Sealants



North American Sealant Demand: _____ million pounds

◆ U.S. Dollar Value: \$ _____ million ◆ '05-'07 AGR ____%

Figure 5:
2005 North American Share of Demand by Product Category - Sealants



North American Sealant Demand: _____ million pounds ♦

U.S. Dollar Value: \$ _____ million ♦ `05-`07 AGR ____%

**Table 7:
Estimated 2005 Data for the North American Sealants Market - U.S.
\$000,000**

	Market Segments Product Categories	I	II	III	IV	Totals
		Construction	Transportation	Consumer (DIY)	Assembly/ Other	
A	Oil-base caulks					
B	Latex acrylic sealants					
C	Polyvinyl acetate caulks					
D	Solvent acrylics					
E	Butyl sealants					
F	Polysulfides					
G	Urethanes					
H	Modified silicones					
I	Silicones					
J	Other					
	Totals					

Source: DPNA International, Inc.

**Table 8:
Estimated 2005 Data for the North American Sealants Market - Millions
of Pounds**

	Market Segments Product Categories	I	II	III	IV	Totals
		Construction	Transportation	Consumer (DIY)	Assembly/ Other	
A	Oil-base caulks					
B	Latex acrylic sealants					
C	Polyvinyl acetate caulks					
D	Solvent acrylics					
E	Butyl sealants					
F	Polysulfides					
G	Urethanes					
H	Modified silicones					
I	Silicones					
J	Other					
	Totals					

Source: DPNA International, Inc.

**Table 9:
Estimated 2005 Data for the North American Sealants Market by
Country -
U.S. \$000,000**

	Market Segments	United States	Canada	Mexico	Totals
I	Construction				
II	Transportation				
III	Consumer/DIY				
IV	Assembly Operations/ Other				
	Totals				

Source: DPNA International, Inc.

**Table 10:
Estimated 2005 Data for the North American Sealants Market by
Country -
Millions of Pounds**

	Market Segments	United States	Canada	Mexico	Totals
I	Construction				
II	Transportation				
III	Consumer/DIY				
IV	Assembly Operations/ Other				
	Totals				

Source: DPNA International, Inc.

SAMPLE

UNITED STATES

SAMPLE

**Table 11:
United States Demographic Data**

North America	2005		2005 Adhesive & Sealant Market			Per Capita Average	
	Population Millions	GDP \$ billion	Million Pounds	Thousand Metric Tons	\$ Value	Pounds	Kg
United States							
Canada							
Mexico*							
Total							

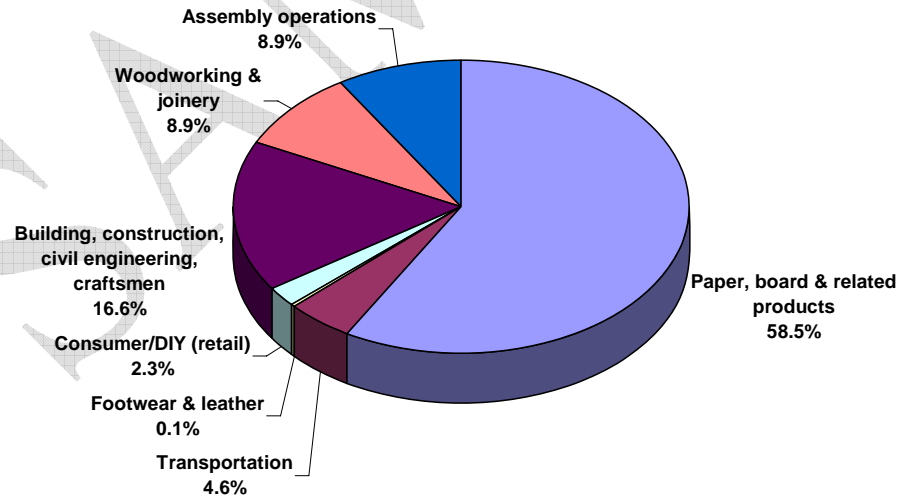
* includes Maquiladora demand

Source: U.S. Department of Commerce/ DPNA International Inc.

ADHESIVES

Market Segments

**Figure 6:
2005 Adhesives Demand by Market Segment - United States**

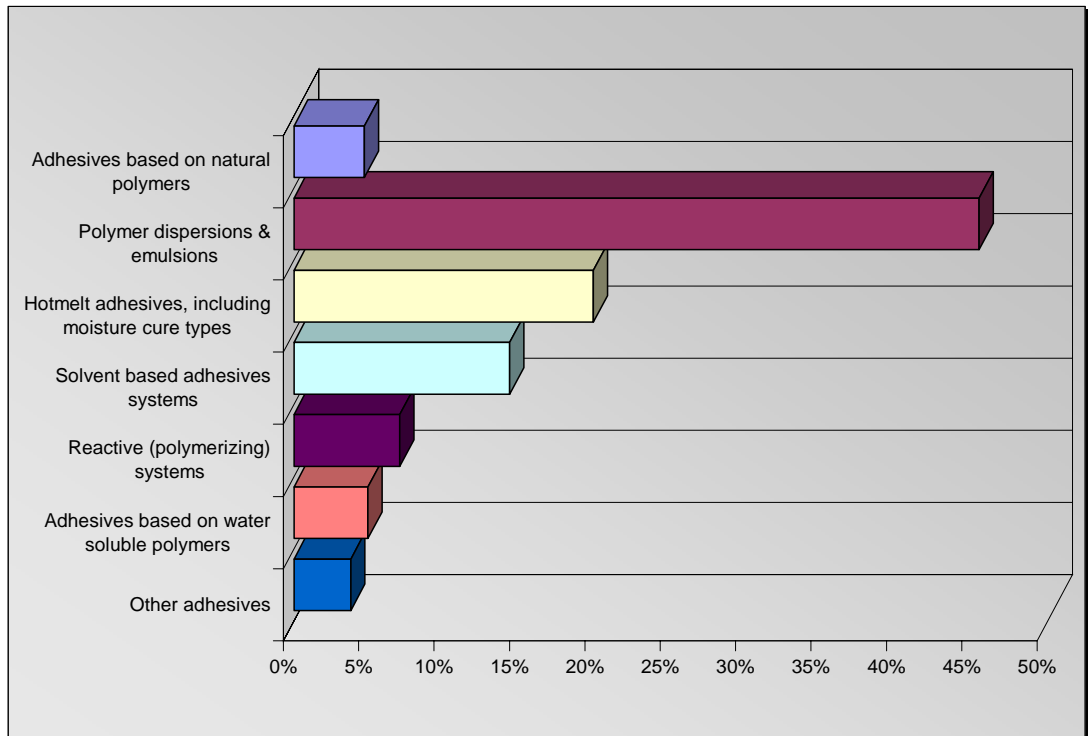


U.S. Adhesive Demand: _____ million pounds ♦ U.S. Dollar Value \$ _____ million
 ♦ '05-'07 AGR ____%

Product Categories

A summary of the relative market share by product category follows.

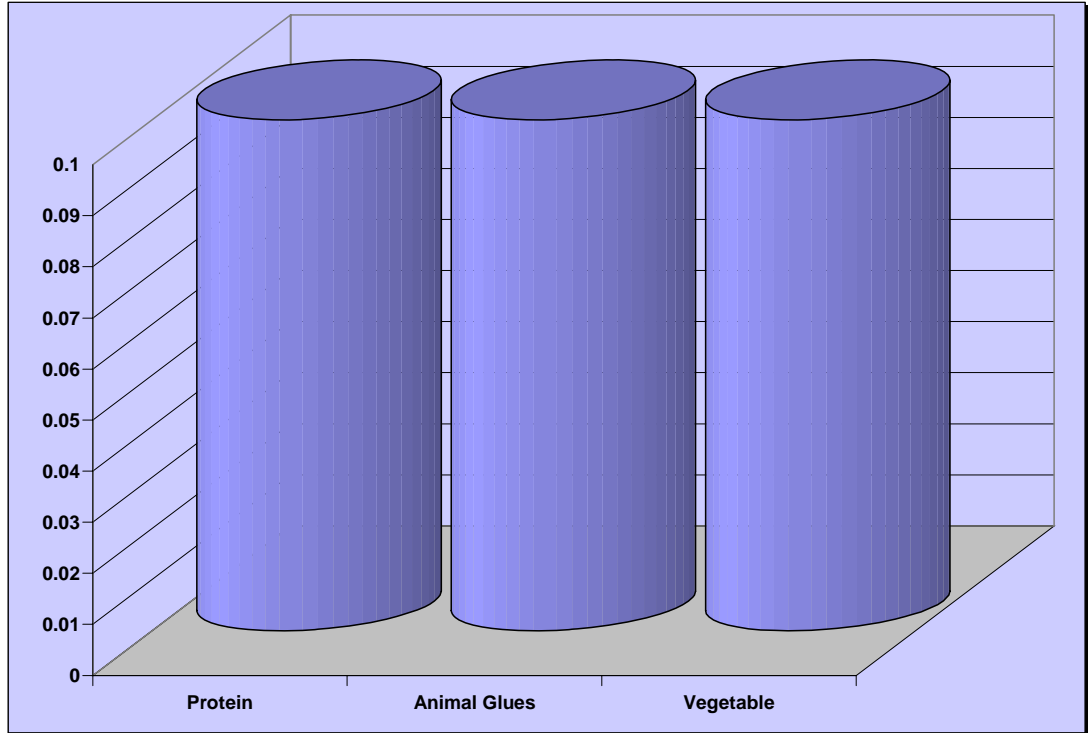
**Figure 7:
2005 Adhesives Demand by Product Categories - United States**



U.S. Adhesive Demand: _____ million pounds ♦ U.S. Dollar Value \$_____million
♦ `05-`07 AGR ____%

Adhesives Based on Natural Polymers

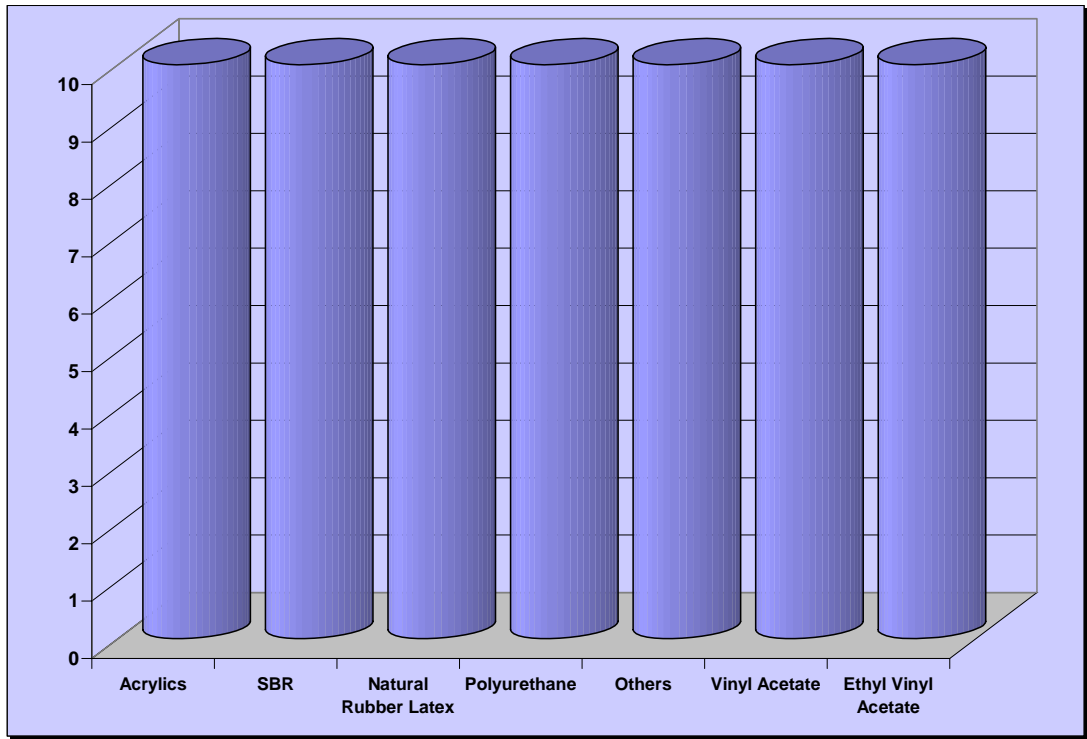
**Figure 8:
Adhesives Based on Natural Polymers
2005 Percent Market Share**



Total 2005 Demand: _____ million pounds ♦ U.S. Dollar Value: \$_____ million
♦ '05-'07 AGR ____%

Polymer Dispersions and Emulsions

**Figure 9:
Polymer Dispersion/Emulsion Adhesives
2005 Percent Market Share**



Total 2005 Demand: _____ million pounds ♦ U.S. Dollar Value: \$_____ million
♦ '05-'07 AGR ____%

Table 12:
Estimated 2005 Data for the U.S. Adhesives Market - U.S.
\$000,000

Market Segments / Product Categories		I	II	III	IV	V	VI	VII	Totals
		Paper, Board and Related Products	Transportation	Footwear and Leather	Consumer/DIY (retail)	Building Construction, Civil Engineering,	Woodworking and Joinery	Assembly Operations/ Other	
A	Adhesives based on natural polymers								
B	Polymer dispersions and emulsions								
C	Hot melt adhesives including moisture-cure types								
D	Solvent based adhesive systems								
E	Reactive (polymerizing) systems								
F	Adhesives based on water-soluble polymers								
G	Other adhesives								
	Totals								

Source: DPNA International, Inc.

Table 13:
Estimated 2005 Data for the U.S. Adhesives Market - Millions of Pounds

Market Segments / Product Categories		I	II	III	IV	V	VI	VII	Totals
		Paper, Board and Related Products	Transportation	Footwear and Leather	Consumer/DIY (retail)	Building Construction, Civil Engineering,	Woodworking and Joinery	Assembly Operations/ Other	
A	Adhesives based on natural polymers								
B	Polymer dispersions and emulsions								
C	Hot melt adhesives including moisture-cure types								
D	Solvent based adhesive systems								
E	Reactive (polymerizing) systems								
F	Adhesives based on water-soluble polymers								
G	Other adhesives								
	Totals								

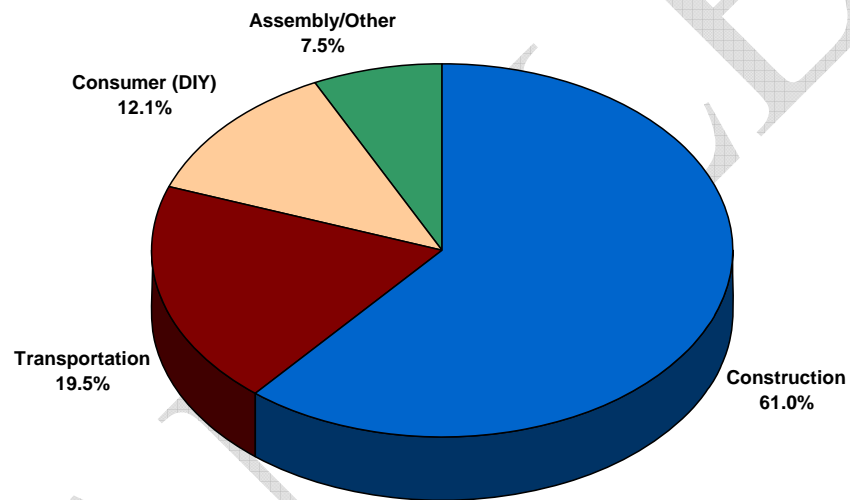
Source: DPNA International, Inc.

SEALANTS

Market Segments

This section contains comments on the sealant markets followed by their respective data tables.

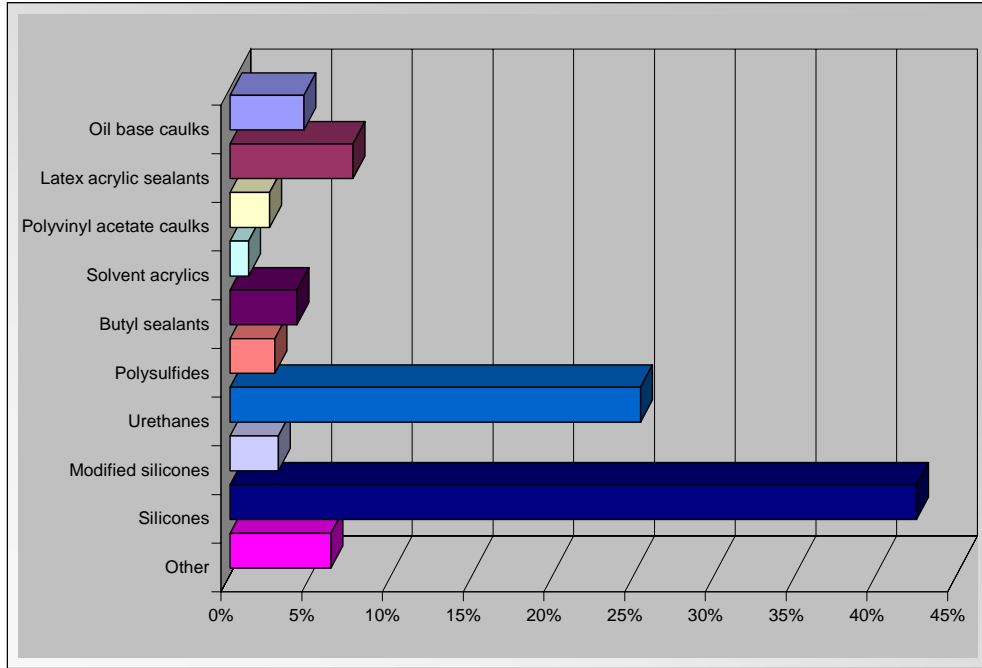
**Figure 10:
2005 Sealants Demand by Market Segment - United States**



Total U.S. Sealant Demand: _____ million pounds ♦ U.S. Dollar Value: \$ _____ million ♦ `05-`07 AGR ____%

Product Categories

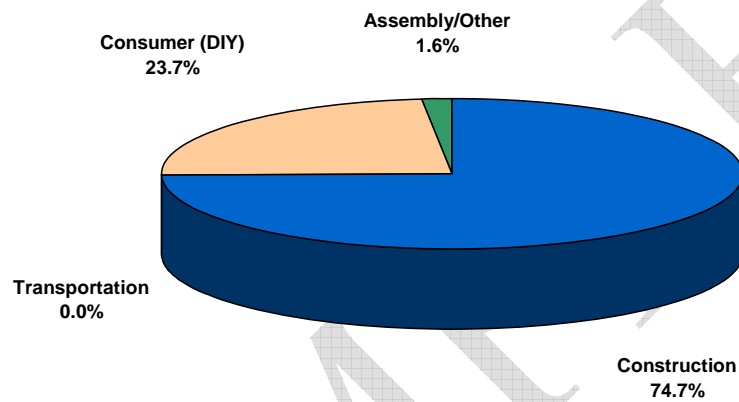
**Figure 11:
2005 Sealant Demand by Product Categories - United States**



Total U.S. Sealant Demand: _____ million pounds ♦ U.S. Dollar Value: \$ _____ million ♦ '05-'07 AGR ____%

Product Category by Market Segment

**Figure 12:
U.S. Oil-Based Caulks by Market Segment
2005 Percent Market Share**



Total Oil-Based Caulks Demand: -_____ million pounds

◆ U.S. Dollar Value: \$_____ million ◆ '05-'07 AGR - -____%

**Table 14:
Estimated 2005 Data for the U.S. Sealants Market - U.S. \$000,000**

	Market Segments Product Categories	I	II	III	IV	Totals
		Construction	Transportation	Consumer (DIY)	Assembly/Other	
A	Oil-base caulks					
B	Latex acrylic sealants					
C	Polyvinyl acetate caulks					
D	Solvent acrylics					
E	Butyl sealants					
F	Polysulfides					
G	Urethanes					
H	Modified silicones					
I	Silicones					
J	Other					
	Totals					

Source: DPNA International, Inc.

**Table 15:
Estimated 2005 Data for the U.S. Sealants Market - Millions of Pounds**

	Market Segments Product Categories	I	II	III	IV	Totals
		Construction	Transportation	Consumer (DIY)	Assembly/Other	
A	Oil-base caulks					
B	Latex acrylic sealants					
C	Polyvinyl acetate caulks					
D	Solvent acrylics					
E	Butyl sealants					
F	Polysulfides					
G	Urethanes					
H	Modified silicones					
I	Silicones					
J	Other					
	Totals					

Source: DPNA International, Inc.