

Pricing Trends/Market Size Insight for Rubber Products

Quarterly Pricing Trends

The Producer Price Index (PPI) data presented here provide a snapshot in time of pricing trends for five common industrial product groups sold by NAHAD members. This report provides a national benchmark and comparison of the latest quarterly data with the previous quarter and the same quarter of the previous year. It represents trends in selling prices received by domestic producers and is a good barometer for inflationary pressures felt at the wholesale level.

Conveyor Belt showed a strong pricing spike from the fourth quarter of 2016 to the first quarter of 2017, with Transmission Belt showing a lesser increase year over year.

Product Categories	Quarterly % Change 4Q16:1Q17	Annual % Change 1Q16:1Q17
Hydraulic Hose	0.0	+ 0.2
Industrial Hose	+ 0.2	+ 0.2
Conveyor Belt	+ 5.0	+ 5.2
Transmission Belt	+ 0.3	+ 2.4
Seals & O-Rings	0.0	+ 0.4

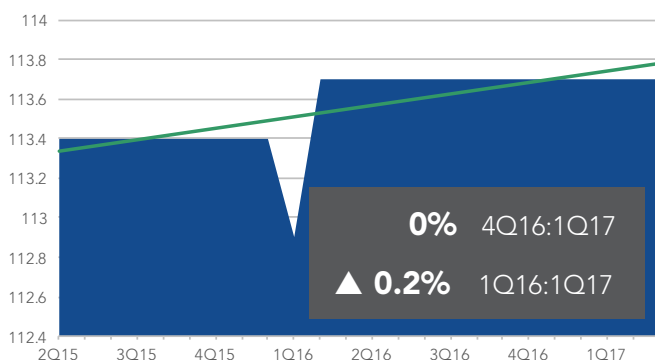
Source: Quarterly Producer Price Index, U.S. Bureau of Labor Statistics. For more detail on pricing trends methodology, see appendix at the end of this report.

Quarterly Pricing Trends:

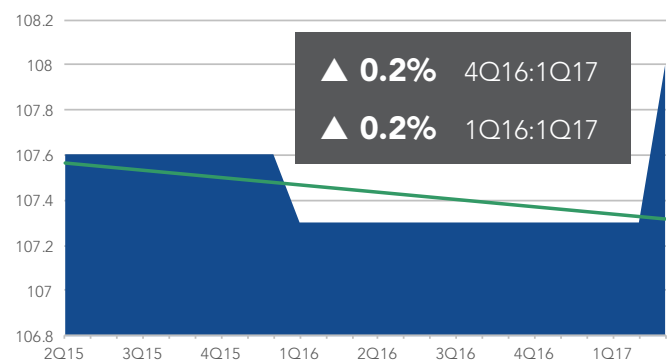
Hose – Hydraulic/Industrial

- Hydraulic and Industrial Hose products showed very stable pricing at a national level in 2016.
- Hydraulic Hose experienced a mild two-year price trending upwards, while Industrial Hose decreased in 2016, with an increase in the first quarter of 2017.

Hydraulic Hose



Industrial Hose

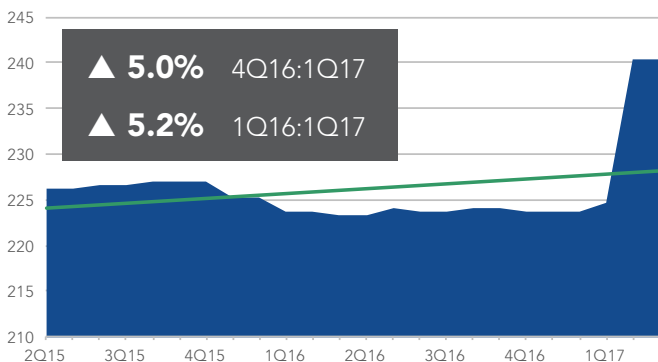


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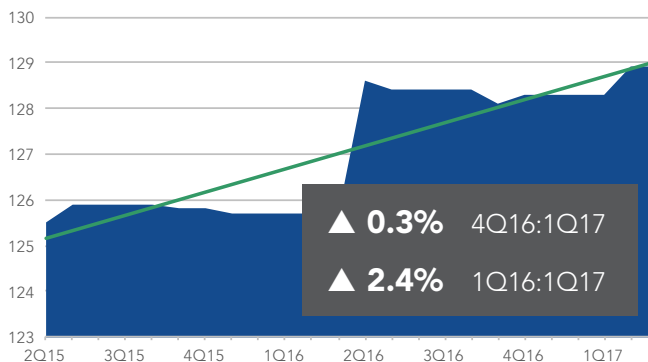
Belt – Conveyor/Transmission

- After stable pricing at a national level in 2016, belting products pricing is firming in Q1 2017.
- Conveyor Belt pricing jumped 5 percent in the first quarter of 2017, the largest change of all product categories.
- Transmission Belt pricing increased sharply in the second quarter of 2016, but remained stable the rest of the year.

Conveyor Belt



Transmission Belt

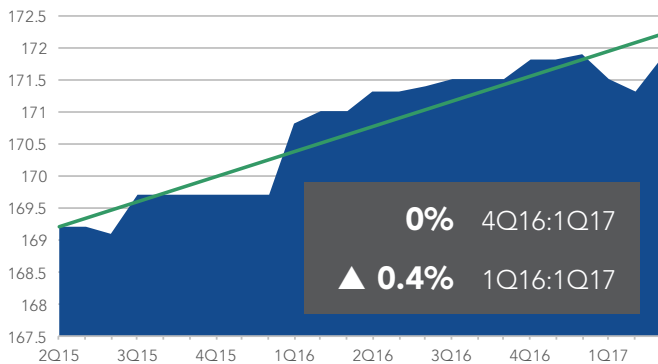


Quarterly Pricing Trends:

Seals & O-Rings

- After trending steadily upwards through 2015 and 2016, this category has flattened in the past two quarters.
- There was a higher rate of pricing increase in 2016 over 2015.

Seals & O-Rings



The indices above are derived from the Producer Price Index, published monthly by the U.S. Bureau of Labor Statistics, which measures the average change over time in selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services. The data from the Producer Price Index tracks wholesale prices, making this index the best source of price trend data for wholesale distribution markets.

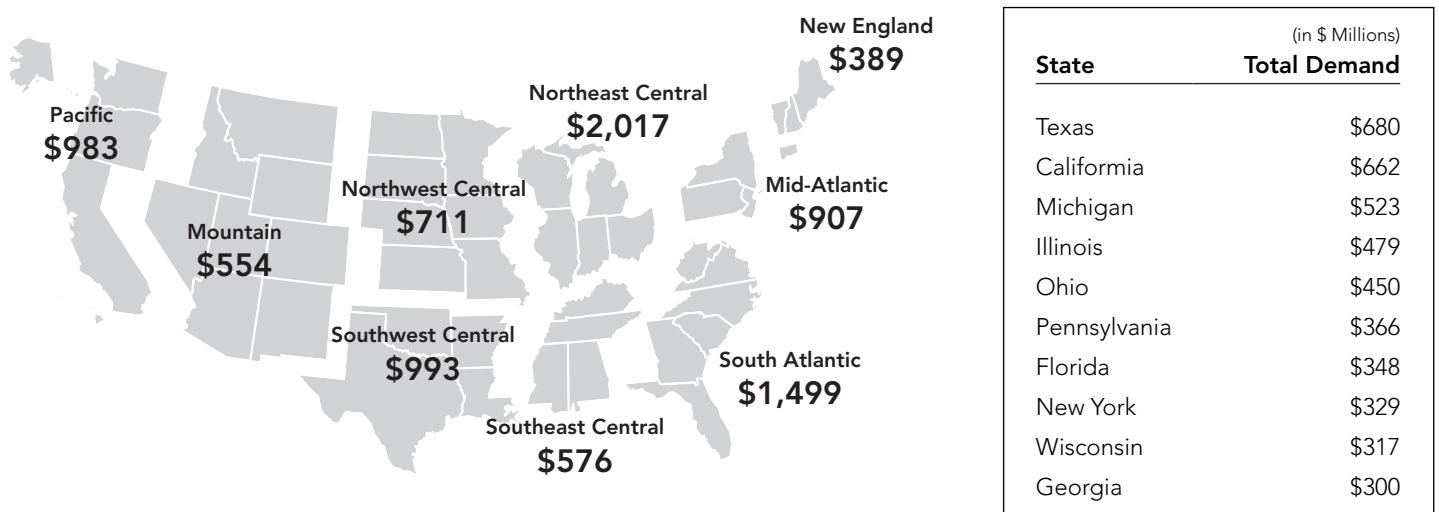
Annual Market Size – Rubber Products

The annual market size in 2016 for the five industrial product categories listed below is estimated at \$8.6 billion. Demand for four of the five product categories declined year-to-year, reflecting overall trends across industrial production indicators for key customer segments in mining, energy, industrial and construction markets. The overall Industrial Production Index, a key measure of U.S. manufacturing activity, showed a slight increase in 2016.

Product Categories	2016 Estimated Market Size (in \$ Millions)	Annual % Change 1Q16:1Q17
Hydraulic Hose	\$1,814	-3.0%
Industrial Hose	\$2,093	+0.3%
Conveyor Belt	\$1,688	-5.2%
Transmission Belt	\$753	-2.5%
Seals & O-Rings	\$2,283	-1.9%
Total Market Potential	\$8,631	<i>Source: MDM Analytics</i>

Annual Market Size – Region / Top 10 States (2016 data)

National Rubber Products Market Size = \$8.6 Billion



All market size analysis in this report is based on five product categories defined at the end of this report. The data reflect estimates of end-use consumption, on an annual basis in U.S. dollars, for maintenance, repair, and operations (MRO) and original equipment manufacturer (OEM) business segments.

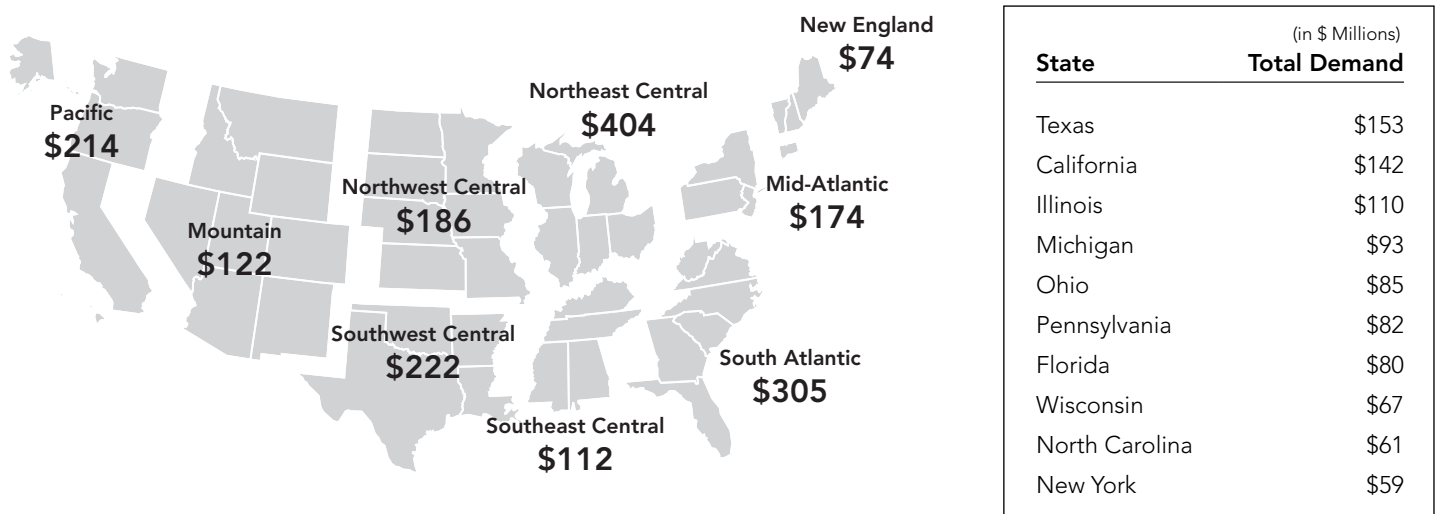
Each quarter, this page profiles a different product category to provide a more in-depth look at the size and make-up of the key customer segments for that category.

Market Size Profile – Hydraulic Hose

The size of the U.S. Hydraulic Hose (including fittings) market is \$1.8 billion, according to estimates by MDM Analytics. This page profiles how demand for Hydraulic Hose is segmented regionally, across the top 10 states by demand, and the top 10 customer sectors that consume Hydraulic Hose, which account for 40 percent of the total market size. Market size is defined as the total available market at the end-user customer level, including a distributor margin estimate, to provide a “street” price estimate, in U.S. dollars.

Market Size – Regions/Top 10 States (2016 data)

Hydraulic Hose Market Size = \$1.8 Billion



Annual Market Size – Top 10 Customer Segments (2016 data)

NAICS 6	Description	Hose-Hydraulic (in \$ Millions)	Accounts
333120	Construction Machinery Manufacturing	\$205	4,002
333111	Farm Machinery and Equipment Manufacturing	\$107	3,288
237310	Highway, Street, and Bridge Construction	\$82	27,931
238110	Poured Concrete Foundation and Structure Contractors	\$68	34,173
336411	Aircraft Manufacturing	\$57	2,020
236220	Commercial and Institutional Building Construction	\$49	62,140
238910	Site Preparation Contractors	\$49	41,086
336111	Automobile Manufacturing	\$42	1,297
333517	Machine Tool Manufacturing	\$36	3,454
238220	Plumbing, Heating, and Air-Conditioning Contractors	\$34	178,333

Product Category Definitions

The market analysis in this report defines the following five product categories in the following manner, using standardized classifications based on the U.S. Census Bureau's NAICS product codes, as well as the U.S. Bureau of Labor Statistics (BLS) Producer Price Index Commodity Codes. See Methodology and Data Sources below for more detail.

Hydraulic Hose

This category is defined by BLS as All Other Hydraulic/Pneumatic Hose.

Industrial Hose

This category is defined by BLS as Industrial Rubber/Plastics Hose.

Conveyor Belt

This category is defined by BLS as Flat Rubber/Plastics Belts and Belting.

Transmission Belt

This category is defined by BLS as Rubber/Plastics Belts and Belting, except flat rubber, including motor vehicle rubber/plastics transmission belts and belting.

Seals & O-Rings

This category is defined by BLS as Packing and Sealing Devices, which includes compression packings, molded packing and sealing devices, rotary oil seals, and axial mechanical face seals and parts.

Methodology & Data Sources

The data in this report was compiled by MDM Analytics, formerly Industrial Market Information, Inc., a subsidiary of Gale Media, Inc., Lafayette, CO, using an econometrics model developed more than 30 years ago. MDM Analytics' databases provide information on the potential demand for a wide range of key industrial goods across the hundreds of industries encompassed by the North American Industry Classification System (NAICS) system for North America. The following is a general overview of the methodology used to develop MDM Analytics' key reports.

All market analysis in this report is based on five product categories defined above. The data reflect estimates of end-use consumption, on an annual basis in U.S. dollars, by maintenance, repair, operations and production (MROP) accounts, and original equipment manufacturer (OEM) accounts.

Regional Territory Definitions

This report uses the nine statistical divisions defined by the U.S. Census Bureau. States included in each division:

Division 1: New England

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Division 2: Mid-Atlantic

New Jersey, New York, Pennsylvania

Division 3: Northeast Central

Illinois, Indiana, Michigan, Ohio, Wisconsin

Division 4: Northwest Central

Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota

Division 5: South Atlantic

Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia

Division 6: Southeast Central

Alabama, Kentucky, Mississippi, Tennessee

Division 7: Southwest Central

Arkansas, Louisiana, Oklahoma, Texas

Division 8: Mountain

Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming

Division 9: Pacific

Alaska, California, Hawaii, Oregon, Washington

First, a total market size for each product category is established using the U.S. Census Bureau's five-year *Economic Census* together with its *Annual Survey of Manufactures*. This mandatory survey of U.S. manufacturers is conducted at a granular product level using standardized NAICS-based product codes, which MDM Analytics aggregates into specific product class and category groupings. Imports-Exports are then factored and a distributor margin is added to estimate an end-user customer, or "street-level," market sizing nationally.

Consumption rates for MRO products at a given account location are largely driven by the type of manufacturing or unique industry-sector processes and number of employees at a location. This demand relationship can be used to model market potential for defined territories at the county level and higher based on a territory's unique composition of industries and the number of employees in those industries.

Continued next page

MDM Analytics' proprietary statistical model segments the national demand for each product category based on its unique historical consumption patterns by each 6-digit NAICS industry sector. Then the total employment of each industry is divided into the total annual market size to arrive at the dollar-per-employee ratio. Market potential can then be estimated by modeling the types of end-market industries and their size in a given territory. In effect, the "DNA" of a territory and its estimated consumption patterns for defined industrial product categories can be estimated.

This NAHAD Markets Monitor report updates market size estimates annually based on change in employment by sector at a county level, as well as a proprietary model using a number of industry sector indices for manufacturing, construction, mining and energy sectors. U.S. employment is measured by 6-digit NAICS industry sector at a county level, sourced through a combination of U.S. Bureau of Labor Statistics, Dun & Bradstreet and private databases. Annual market size estimates are revised with additional input and validation from annual Census data.

Quarterly Pricing Trends Methodology

Data presented here provide a snapshot in time of wholesale pricing trends in five common industrial product groups sold by NAHAD members. The report provides comparison of the latest quarterly data with the previous quarter and the same quarter of the previous year.

The NAHAD Markets Monitor quarterly pricing trends report is based on the Producer Price Index (PPI) published by the U.S. Bureau of Labor Statistics. Quarterly percent change, which is not reported by the U.S. government, is calculated by MDM editors based on quarterly averages using a method developed after consulting with the BLS.

The PPI program measures the average change over time in selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services. The data from the Producer Price Index tracks wholesale prices, making this index the best source of price trend data for the wholesale distribution market. The PPI does not measure the cost of producing an item.

Indexes are organized in three major structures: stage of processing (organized by class of buyer and degree of fabrication); industries and their products (organized by producing industry as defined by NAICS); and type of commodity (organized by similarity of end use or material composition).

To calculate its item-specific index each quarter, MDM uses the PPI organized by commodity. This provides the greatest detail for specific products. It also provides a great deal of historical data. The downside to the commodity index coding system is that no other governmental statistical program uses it. Commodities are grouped according to similarity of material composition and end use, regardless of industry of origin. Because of this, they are not organized by NAICS (North American Industry Classification System).

In addition, when using the commodity indexes, it is inadvisable to roll up products into one overarching index without accounting for double-counting due to stages of processing. This is why MDM presents data at a lower level and as close to an individual product basis as possible, rather than presenting a total index for the products. For overall percent changes by industry (NAICS) or level of processing (crude vs. finished, for example), businesses should use the stage of processing or industry indexes at www.bls.gov/ppi.

How Firms Use the Producer Price Index

According to the BLS, businesses often employ price adjustment clauses in long-term sales and purchase contracts, frequently using the PPI family of indexes, either alone or in conjunction with other sources of economic data. Because the PPI indexes measure price changes objectively, the PPI calculated by the Bureau of Labor Statistics are widely recognized among businesses, economists, statisticians and accountants as useful for this purpose.

To learn more about the development of escalation clauses in contracts tied to PPI data, as well as potential challenges in doing so, visit this website: <http://www.bls.gov/ppi/ppi-escalation.htm>.

MDM Analytics does not encourage or discourage the use of price adjustment measures in purchase and sales agreements.

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