Antioxidants

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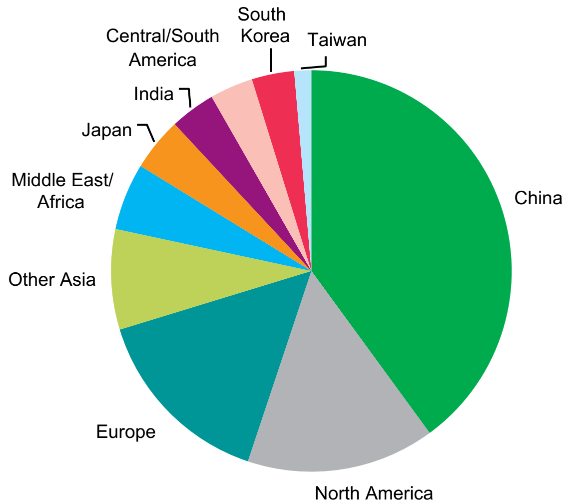
Abstract

The rubber-processing, plastics, food and feed, and the fuel and lubricants industries are major consumers of antioxidants. Antioxidants are part of a company's broader portfolio of additive products designed to serve specific end-use industries. Therefore, antioxidants do not really represent an industry but characterize one component of the larger chemical additives industry.

The principal chemical classes of antioxidants are amines, hindered phenols, phosphites, thioesters, and various natural or natural-based compounds. These chemicals are used primarily to inhibit the oxidative degradation of unsaturated organic materials, such as elastomers, plastics, petroleum-based fuels, and food or animal feed.

The following pie chart shows world consumption of antioxidants:

World consumption of antioxidants—2017



Source: IHS Markit

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Antioxidant producers have been facing a significant shift of their customer base to Asia Pacific, particularly to China. Meanwhile, market competition from China is growing rapidly. To serve the growing global customer base, major antioxidant producers have been partnering with local companies to expand local production bases. Asia Pacific accounts for about 50–60% of the global production of antioxidants, mostly in China, but also in India, Taiwan, and South Korea, as well as Japan.

There are some uncertainties concerning the future direction of the world's economies, including the resolution of the eurozone's and South America's debt and financial challenges, as well as the sluggish economic growth rates in the United

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States. In addition, the Chinese economy, which had been growing briskly, is slowing, casting doubt on its future course. While no one is willing to predict when the world's economies will return to historical growth patterns, for the purposes of this report, the authors have assumed that the current eurozone problems will be resolved over time without significantly hurting the region's economy and that the other regions' economies will begin or continue to slowly return to historical growth patterns. Individual economies are not expected to return to their historical growth patterns. Additional factors in this report's forecasts include the migration of manufacturing from developed to developing economies and the uncertainty in energy prices. Each region's economic conditions are reflected in the consumption forecasts for that region.

In 2017, rubber and latex applications accounted for 58% of total antioxidant consumption in the major regions, followed by plastics (34%), food and feed (4%), and petroleum fuels (2%) on a volume basis. In 2017, amines accounted for 56% of total antioxidant consumption, followed by hindered phenols (25%), phosphites (15%), thioesters (2%), and others (2%). Substantial differences in end-use distribution and product type are apparent among the major regions, as discussed in the regional sections of this report.

The five-year consumption growth rate through 2022 is projected to be between 3% and 4% per year. China and India are expected to grow the fastest, followed by the Middle East and Africa, and Other Asia. The remaining countries/regions are expected to grow more slowly over the forecast period.

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