

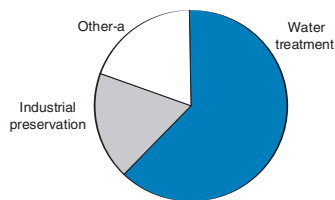
Specialty Biocides 2010: Brazil Market Analysis and Opportunities

Fact Sheet

The Market

In 2009, the specialty biocide market in Brazil reached a volume of 75,000 tonnes. Water treatment dominates the market, with volume consumption driven by biocide usage in cooling water applications and recreational water. Key industry sectors that use significant quantities of cooling water include chemical and steel production, oil refinery, and sugar and ethanol production. There is also increased investment and exploration for oil and gasfield sites.

Market Breakdown for Specialty Biocides by Major Application in Brazil, 2009

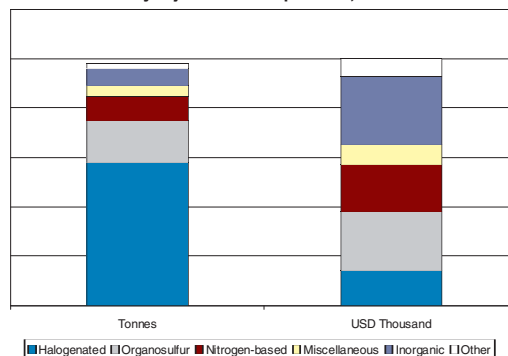


a- Includes cosmetics, civil construction, HI&I cleaning, leather, mineral slurries, and wood preservation.

Products

Halogenated biocides are the leading category on a volume basis, due to extensive usage in water treatment. Organosulfur biocides are number one with respect to revenues generated. Isothiazolinones, for example, have a dominant position in the market due to their usage in paints and coatings.

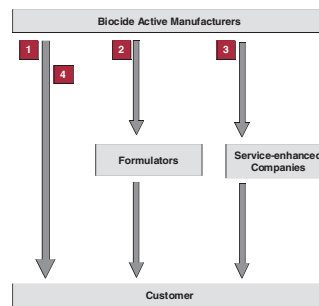
Market Breakdown for Specialty Biocides by Major Product Group in Brazil, 2009



Competitive Structure

The supplier base for biocidal actives includes both domestic manufacturers and multinational companies. Leading domestic manufacturers include Ipel and Miracema-Nuodex. In general biocide suppliers distribute their products using four business models: direct sales with or without service, distributors, or through service-enhanced companies. Via the service-enhanced route biocides are supplied with a significant service element including microbial monitoring, corrosion measures, etc. Ad-hoc formulations can also be supplied. Examples of service companies include Nalco and Buckman. The main segments where this channel is common is within cooling water, paper, oil and gas, and leather.

Specialty Biocides Industry Structure in Brazil, 2009



Future Outlook

GDP growth in Brazil had been stable in the last few years; however, in 2009, GDP fell by 0.2% due to the economic downturn. However, prospects for the future are positive and in 2009 GDP is expected to grow by 6% to 7%. Development of the biocide industry is influenced by GDP due to the end use markets for biocides being inherently linked to activities such as construction. From 2009 to 2014, a probable case scenario predicts average growth of 6.4%.

Volume Growth by Application Group in Brazil, 2009 to 2014

