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Ethylene Scavengers Market Forecasts to 2032 – Global Analysis By Product Type (Potassium Permanganate (KMnO4), 1-Methylcyclopropene (1-MCP), Zeolite, Activated Carbon, Pumice, Bio-based Scavengers and Other Product Types), Form (Sheets, Sachets, Films, Granules, Beads, Coatings and Other Forms), Packaging, Distribution Channel, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Ethylene Scavengers Market is accounted for $5.53 billion in 2025 and is expected to reach $8.60 billion by 2032 growing at a CAGR of 5.5% during the forecast period. Ethylene scavengers are active packaging agents designed to mitigate ethylene gas accumulation, which accelerates ripening and senescence in fresh produce. These compounds often based on oxidizing agents like potassium permanganate or adsorbents such as activated carbon function by chemically reacting with or adsorbing ethylene molecules. Their integration into packaging systems helps extend shelf life, preserve texture and color, and reduce spoilage. Advanced variants include nanomaterials and catalysts that enhance ethylene removal efficiency across diverse storage environments.

According to the International Journal of Advanced Biochemistry Research, ethylene-induced deterioration contributes to an annual loss of 25–40% in the commodity value of fruits and vegetables, prompting the adoption of ethylene scavengers to mitigate post-harvest degradation and extend shelf life through chemical and physical adsorption mechanisms.

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Market Dynamics:

Driver:

Increasing consumer demand for fresh produce

Ethylene scavengers play a critical role in slowing down ripening and spoilage, especially during transportation and retail display. With increasing awareness of food waste reduction and quality assurance, retailers and distributors are adopting ethylene control technologies to maintain product integrity. Innovations in packaging materials embedded with scavenging agents are further enhancing the effectiveness of these solutions. The trend is particularly strong in urban centers where fresh produce logistics are complex and time-sensitive.

Restraint:

Availability of alternatives

Modified atmosphere packaging (MAP), refrigeration systems, and ozone-based solutions offer comparable results in certain applications and may be more cost-effective for large-scale operations. Additionally, some alternatives require less frequent replacement or maintenance, making them attractive to budget-conscious stakeholders. The presence of multifunctional packaging systems that combine humidity control, antimicrobial properties, and ethylene absorption also dilutes the standalone demand for scavengers. This diversification of preservation methods poses a challenge to market penetration.

Opportunity:

Residential and small-scale applications

Consumers are increasingly seeking solutions to prolong the freshness of fruits and vegetables stored at home, especially in regions with limited refrigeration access. Compact sachets and user-friendly formats are being developed to cater to household needs, offering convenience and affordability. Moreover, small retailers and local cooperatives are adopting scavenger technologies to reduce spoilage and improve product turnover promising growth opportunity for manufacturers targeting decentralized distribution models.

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Threat:

Evolving consumer preferences

Consumer behavior is evolving rapidly, with increasing emphasis on sustainability, minimal packaging, and natural preservation methods. Some buyers are skeptical of chemical-based scavengers and prefer organic or passive alternatives. Additionally, the demand for transparent labeling and clean technologies is influencing purchasing decisions, especially among environmentally conscious demographics. If ethylene scavenger products fail to align with these expectations, they risk losing relevance in competitive retail environments.

Covid-19 Impact:

The pandemic disrupted global supply chains and altered consumer priorities, indirectly influencing the ethylene scavengers market. While logistical challenges affected the availability of packaging materials and scavenger components, the heightened focus on food safety and shelf stability created new demand. Retailers sought reliable preservation solutions to manage fluctuating inventory cycles and reduce waste during lockdowns. Additionally, the surge in e-commerce and home delivery of fresh produce accelerated the adoption of ethylene control technologies in transit packaging.

The potassium permanganate (KMnO4) segment is expected to be the largest during the forecast period

The potassium permanganate (KMnO4) segment is expected to account for the largest market share during the forecast period due to its high efficacy and cost-effectiveness. It is widely used in sachets, filters, and bulk packaging formats across commercial supply chains. The compound’s strong oxidative properties enable rapid ethylene neutralization, making it ideal for long-haul transportation and cold storage environments. Recent developments in encapsulation and controlled-release formulations have further improved its performance and safety profile.

The sachets segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the sachets segment is predicted to witness the highest growth rate driven by its versatility and ease of integration into various packaging systems. These compact units are suitable for both industrial and household applications, offering targeted ethylene absorption without altering the packaging

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design. Manufacturers are innovating with multi-layer sachets that combine moisture control and microbial resistance, enhancing overall produce preservation.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share propelled by its advanced logistics infrastructure and strong retail networks. The region’s emphasis on food quality, waste reduction, and sustainable packaging has accelerated the deployment of ethylene control technologies. Major supermarket chains and produce distributors are investing in enhanced packaging systems to meet consumer expectations and regulatory standards.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR attributed to rapid urbanization, expanding middle-class populations, and increasing demand for fresh produce. Countries like China, India, and Southeast Asian nations are investing in cold chain infrastructure and modern retail formats, creating fertile ground for ethylene scavenger adoption. Local manufacturers are also entering the market with cost-effective solutions tailored to regional needs making Asia Pacific a key focus area for global players.

Key players in the market

Some of the key players in Ethylene Scavengers Market include YOME, R.P.F. Co., Ltd., Purfresh, Nanopack, Multisorb, Mitsubishi Gas Chemical Company, Inc., Lenzing AG, Keepfresh, It's Fresh!, Fresh-Ripe, Environ Care Products LLP, DS Smith, Decco, Clariant, Bluapple, Bioconservacion S.A., Bee Chems, Amcor plc, Agripac S.A., and Adespack.

Key Developments:

In July 2025, Lenzing announced the placement of a EUR 500m hybrid bond to strengthen its capital structure and support strategic plans. The announcement named lead banks and gave settlement details and purpose (balance-sheet strengthening / financing).

In June 2025, DS Smith confirmed start-up of a €90 million biomass boiler at its Rouen mill a major decarbonisation and efficiency investment for paper production. The

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release framed this as part of DS Smith’s sustainability and operational-investment program to cut emissions and improve energy resilience.

Product Types Covered:

- Potassium Permanganate (KMnO4)
- 1-Methylcyclopropene (1-MCP)
- Zeolite
- Activated Carbon
- Pumice
- Bio-based Scavengers
- Other Product Types

Forms Covered:

- Sheets
- Sachets
- Films
- Granules
- Beads
- Coatings
- Other Forms

Packagings Covered:

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- Primary Packaging
- Secondary Packaging
- Palletized Logistic Solutions
- Cold Chain
- Other Packagings

Distribution Channels Covered:

- Distributors & Wholesalers
- Direct Sales
- Online Retail
- Specialty Stores

Applications Covered:

- Fresh Fruits & Vegetables
- Processed Foods
- Cut Flowers & Ornamentals
- Seeds & Tubers
- Pharmaceuticals & Specialty Chemicals
- Other Applications

End Users Covered:

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- Food & Beverage
- Agriculture
- Logistics & 3PL Providers
- Residential
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan

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China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants

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- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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