

# **North America Agrochemical Intermediates Market, By Product Type (Amines, Alkyl Amines, Aldehydes, Acids, Others), By Application (Herbicides, Insecticides, Fungicides, Nematicides, Others), By Country and Competition, Forecast & Opportunities, 2018-2028F**

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## **Abstracts**

The North America Agrochemical Intermediates Market was valued at USD 12091.10 Million in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 3.97% and is expected to reach USD 15277.02 Million by 2028. Agrochemical intermediates are fundamental chemical compounds utilized as fundamental components or precursor materials in the manufacturing of agrochemicals, which find widespread application in agriculture for the dual purpose of augmenting crop yields and safeguarding crops against pests and diseases. These intermediates serve as the building blocks for various categories of pesticides, encompassing herbicides, fungicides, and insecticides. Examples of such agrochemical intermediates include 4-Fluorotoluene Diethyl Phosphorochloridothionate, 2-Chloro-5-Chloro Methyl Pyridine, 2-Chloro-6-(Trichloromethyl) Pyridine, and 2-Chloropropionic Acid, which are integral to the pesticide production process. Among the commonly employed agrochemical intermediates by end-users are alkylamines, amines, aldehydes, and acids. Furthermore, the significance of agrochemical intermediates in modern agriculture cannot be overstated. They play a pivotal role in preserving crop quality, mitigating the ecological footprint of agriculture, and augmenting crop yields. It is worth noting that the utilization of synthetic agrochemicals has raised concerns regarding their potential impacts on the environment and human health. Consequently, ongoing efforts in research and development are steering the development of more sustainable and eco-friendly agrochemical alternatives. The convergence of these factors collectively

contributes to the growth of the North America Agrochemical Intermediates Market within the forecast period.

## Key Market Drivers

### Rising Soil Depletion

Agriculture is the backbone of our global food system, providing sustenance for billions of people worldwide. However, the pressure on agriculture to meet the growing demand for food, fiber, and fuel has led to unsustainable farming practices, particularly soil depletion. Soil depletion, characterized by the loss of essential nutrients and fertility, poses a significant threat to global food security. Soil is a finite and precious resource that sustains life on Earth. It is home to a complex ecosystem of microorganisms, insects, and earthworms, all working together to maintain its health and fertility. However, intensive agricultural practices, such as monoculture farming, excessive use of synthetic fertilizers, and inadequate crop rotation, have taken a toll on soil health. These practices deplete essential nutrients like nitrogen, phosphorus, and potassium, degrade soil structure, and lead to increased erosion. Soil depletion has far-reaching consequences, including reduced crop yields, increased vulnerability to pests and diseases, and compromised environmental sustainability. To address this pressing issue, the agricultural sector is increasingly turning to agrochemical intermediates as a part of a multifaceted solution. One of the primary uses of agrochemical intermediates is in the production of fertilizers. Fertilizers are essential for replenishing nutrients in depleted soils, promoting plant growth, and maximizing crop yields. Agrochemical intermediates facilitate the development of specialized fertilizers designed to address specific nutrient deficiencies in different regions. For example, intermediates are used in the production of nitrogenous, phosphatic, and potash fertilizers. These fertilizers release essential nutrients gradually, ensuring that plants have a continuous supply throughout their growth cycle. This approach minimizes nutrient runoff into water bodies, reducing the risk of water pollution and ecological damage.

Moreover, agrochemical intermediates are also instrumental in the development of pesticides and herbicides. While the excessive use of synthetic pesticides can harm soil health and beneficial organisms, judicious use of advanced agrochemical formulations can protect crops from pests and diseases without compromising soil fertility. Integrated Pest Management (IPM) strategies leverage these intermediates to create targeted pesticide solutions. By focusing on specific pests and minimizing non-target effects, IPM reduces the need for broad-spectrum chemicals that can disrupt soil ecosystems. In recent years, there has been a growing interest in biological agrochemicals, which

include biofertilizers and biopesticides. Agrochemical intermediates play a pivotal role in the development of these sustainable alternatives. Biofertilizers, for instance, contain beneficial microorganisms that enhance nutrient availability to plants and improve soil structure. Biopesticides harness the power of natural predators and pathogens to control pests, reducing the need for chemical interventions. Agrochemical intermediates are used to formulate these biological solutions, ensuring their effectiveness and stability.

Furthermore, agrochemical intermediates are crucial in the development of soil conditioners and amendments that improve soil structure and fertility. Soil conditioners, such as gypsum and organic matter, can enhance water retention and aeration in compacted soils, while amendments like lime can neutralize soil acidity. By addressing soil compaction, acidity, and structure, these products create a more hospitable environment for beneficial soil organisms and root development. Agrochemical intermediates play a pivotal role in the formulation of these soil health management solutions. Therefore, increasing soil depletion resulted in increasing the demand of agrochemical intermediate led to the growth of North America Agrochemical Intermediates Market.

### Increasing Adoption of Advanced Farming Practices

Agriculture is undergoing a transformative revolution, driven by the need to meet the global demand for food, fiber, and fuel. In this era of burgeoning population and changing climate patterns, traditional farming practices are proving insufficient. To ensure sustainable and bountiful harvests, modern farming practices are taking center stage, leveraging the potential of agrochemical intermediates. These chemical compounds, used in the synthesis of fertilizers, pesticides, herbicides, and more, are at the forefront of the agricultural renaissance, reshaping the industry's landscape. Historically, agriculture relied on age-old techniques passed down through generations. While these practices sustained human societies for millennia, they struggled to keep pace with the demands of the modern world. The Green Revolution marked a turning point, introducing high-yielding crop varieties and synthetic fertilizers. However, it also brought environmental concerns, as excessive chemical use led to soil degradation and water pollution. Today, modern farming practices seek to strike a balance between productivity, sustainability, and environmental stewardship. Agrochemical intermediates are instrumental in achieving these goals, empowering farmers to optimize resource use, protect crops, and enhance soil health.

Moreover, precision agriculture is the cornerstone of modern farming, made possible by

agrochemical intermediates. This approach harnesses technology and data to tailor farming practices to the unique needs of each field or crop. Soil sensors, drones, and GPS technology enable farmers to apply fertilizers, pesticides, and water with pinpoint accuracy, reducing waste and environmental impact. Agrochemical intermediates are used in the creation of specialized fertilizers that address specific nutrient deficiencies in soil. These customized formulations ensure that crops receive the precise nutrients they require, promoting healthy growth and maximizing yields. By avoiding over-application, farmers reduce costs and minimize the risk of nutrient runoff. Modern farming practices prioritize integrated pest management (IPM) over indiscriminate pesticide use. Agrochemical intermediates are vital in developing biopesticides, which employ natural predators and pathogens to control pests. IPM strategies reduce chemical residues in crops and foster ecological balance, safeguarding beneficial insects and pollinators. Along with this, maintaining soil health is a central tenet of modern agriculture. Agrochemical intermediates facilitate the creation of soil conditioners, such as gypsum and organic matter, that improve soil structure and water retention. Soil amendments like lime help neutralize acidity, creating a conducive environment for crop roots and soil organisms. Thus, the large number of benefits of agrochemical intermediates is anticipated to drive the demand of North America Agrochemical Intermediates Market in the forecast period.

### Rising Demand for Food

Due to the growth of the global population, rapid urbanization, and evolving dietary preferences, the demand for food is reaching unprecedented levels. This surge in food demand has placed the agrochemical intermediate market in a pivotal role within the realm of global agriculture. Agrochemical intermediates are essential components that play a crucial role in enabling farmers to meet the increasing demand for abundant, high-quality food while addressing the numerous challenges stemming from limited arable land and the ever-changing climate. At the heart of this transformative journey are agrochemical intermediates, the fundamental building blocks used in the creation of various agricultural chemicals such as pesticides, herbicides, and fertilizers. These agricultural chemicals are vital for enhancing crop yields and safeguarding crops from the perils of pests and diseases. As such, they are instrumental in ensuring food security and meeting the global demand for sustenance. Agrochemical intermediates, when harnessed in the production of fertilizers, contribute significantly to the improvement of soil fertility and the availability of essential nutrients. This enhancement of soil conditions directly translates to increased crop yields, enabling farmers to produce more food to meet the escalating demand.

Moreover, pesticides that are derived from these agrochemical intermediates serve as a protective shield for crops, warding off the threats posed by pests and diseases. By doing so, they safeguard crop yields and ensure a consistent and stable supply of food, thus contributing to global food security. Additionally, the precise management of nutrients facilitated by agrochemical intermediates ensures that crops receive the necessary nutrients at the right time. This targeted approach minimizes resource waste and maximizes productivity, ultimately contributing to sustainable agricultural practices. In essence, the growing demand for food is intrinsically linked to the rising need for agrochemical intermediates. These chemical building blocks are the cornerstone of modern agriculture, allowing farmers to enhance productivity, protect their crops, and meet the global challenge of feeding an ever-expanding population. Thus, these factors dominate the growth of North America Agrochemical Intermediates Market in the forecast period.

## Key Market Challenges

### High Cost of Agrochemical Intermediates

The development and enhancement of bio-based or advanced agrochemical intermediates entail extensive phases of research, rigorous testing, and compliance with regulatory requirements. These processes demand substantial financial investments, which contribute to elevated costs. In certain instances, bio-based or specialty components employed in agrochemical intermediates may be more expensive to procure and produce when compared to conventional alternatives. Their unique properties or specialized sourcing methods can drive up production costs. Some agrochemical intermediates, particularly those derived from novel sources or involving sophisticated production techniques, necessitate intricate and resource-intensive manufacturing processes. These complexities in manufacturing naturally result in higher expenses. Limited availability of specific agrochemical intermediates, coupled with a growing appetite for sustainable alternatives, can create a scenario where prices are pushed upward due to the imbalanced relationship between supply and demand.

### Regulated the Soil pH

In the complex realm of agriculture, the soil's pH level assumes a pivotal role, exerting a profound impact on crop growth, the availability of nutrients, and overall agricultural productivity. Amidst the intricate interplay between soil chemistry and the vitality of plants, the influence of soil pH on agrochemical intermediates takes center stage, significantly shaping the effectiveness of these inputs in sustainable farming practices.



Soil pH serves as a metric for gauging the acidity or alkalinity of the soil, denoted on a scale ranging from 0 to 14, where a neutral point is represented by 7. Any values below 7 indicate soil acidity, while values exceeding 7 signify alkalinity. Notably, each unit change on the pH scale represents a tenfold difference in either acidity or alkalinity. The optimal pH range for most crops typically falls within the spectrum of 6 to 7, indicating a slightly acidic to neutral soil environment. Crucially, soil pH plays a direct role in influencing nutrient availability by impacting the solubility of essential elements. Agrochemical intermediates undergo chemical transformations that can significantly alter the accessibility of nutrients to plants, which might hamper the growth of North America Agrochemical Intermediates market in the projected period.

## Key Market Trends

### Organic Farming

In this region, a profound revolution is underway within the agricultural sector. Driven by the imperative to strike a balance between food security, environmental stewardship, and economic viability, sustainable farming practices are emerging as a guiding light. Sustainable farming transcends being merely a passing trend; it represents a paradigm shift that acknowledges the intricate interconnectedness of ecosystems, food production, and human well-being. This comprehensive approach aims to minimize adverse impacts on the environment while simultaneously ensuring the sustainability of productive and profitable farming endeavors. Agrochemical intermediates, the compounds that serve as the fundamental building blocks in the creation of agrochemicals such as pesticides and fertilizers, play a pivotal role in this transformative journey. Furthermore, sustainable farming practices intertwined with the use of agrochemical intermediates embody a delicate equilibrium between sustaining high crop yields and safeguarding the environment. By harnessing agrochemical intermediates, farmers gain the capability to execute precise and targeted applications of pesticides and fertilizers. This approach minimizes wastage, reduces the environmental footprint, and prevents the overuse of these agricultural inputs. Additionally, agrochemical intermediates foster the development of Integrated Pest Management (IPM) strategies, which prioritize the employment of natural pest control methods and the judicious use of pesticides only when necessary.

Furthermore, the use of agrochemical intermediates facilitates the formulation of customized fertilizers tailored to meet the specific nutrient requirements of crops. This practice curbs nutrient runoff into water bodies, thereby mitigating water pollution. Moreover, sustainable farming practices encompass the ecological dimension of

agricultural activities. Methods involving precise application techniques and targeted formulations, made possible by agrochemical intermediates, diminish the risk of chemical runoff. This, in turn, preserves soil quality and conserves water resources. The utilization of agrochemical intermediates can also result in soil amendments that enhance soil structure, nutrient retention, and microbial diversity. Additionally, sustainable practices encourage the proliferation of beneficial insects, birds, and other wildlife, contributing to the creation of a balanced ecosystem. These practices enhance biodiversity and cultivate a harmonious coexistence between agriculture and the natural world.

Innovations within the agrochemical industry are further propelling the sustainable farming movement. For instance, the advent of Nanoformulations, which leverages nanotechnology for the precise targeting of agrochemicals, leads to reduced overall application volumes and more efficient utilization. Additionally, the integration of data analytics and digital tools optimizes the application of agrochemicals, enhancing both efficiency and precision. Thus, the burgeoning adoption of sustainable farming practices intertwined with agrochemical intermediates heralds a transformative era in agriculture. This approach not only seeks to ensure food security and economic viability but also strives to safeguard the environment, promote biodiversity, and harness cutting-edge innovations for a more sustainable and resilient agricultural future.

### Rising Demand of Bio-Based Agrochemical Intermediates

The agricultural sector is currently undergoing a profound transformation, with sustainability emerging as its central focus. At the heart of this revolution lies the exploration and utilization of bio-based agrochemical intermediates – an innovative approach poised to redefine farming practices, protect the environment, and ensure food security for future generations. Bio-based agrochemical intermediates, the building blocks of environmentally friendly pesticides, fertilizers, and essential agricultural inputs, are sourced from renewable origins such as agricultural residues, plant extracts, and microbial processes. By harnessing these natural components, farmers can effectively manage pests, enhance nutrient levels, and simultaneously reduce their environmental footprint. One of the key advantages of bio-based agrochemicals is their biodegradability in the environment. Unlike their synthetic counterparts, these eco-friendly alternatives break down naturally, leading to reduced soil and water pollution. This contributes to the creation of healthier ecosystems and safeguards non-target organisms.

Additionally, bio-based intermediates stand out for their environmental benefits. They

reduce greenhouse gas emissions and diminish reliance on non-renewable resources, aligning with the principles of a circular economy. These intermediates often pose lower risks to humans, animals, and beneficial insects compared to synthetic chemicals, thereby fostering safer working conditions for farmers, and promoting healthier food systems. Moreover, the utilization of bio-based agrochemical intermediates facilitates the development of biopesticides. These natural solutions combat pests through environmentally friendly mechanisms, precisely targeting specific threats while preserving beneficial insects and vital pollinators.

Furthermore, bio-based intermediates play a pivotal role in the creation of biostimulants. These products enhance plant growth, nutrient absorption, and stress tolerance, resulting in healthier and more resilient crops. Organic fertilizers derived from bio-based intermediates release nutrients gradually over time, enriching soil fertility and minimizing nutrient runoff, thus contributing to sustainable agricultural practices.

## Segmental Insights

### Product Type Insights

Based on the product type, the amines segment is expected to register the highest growth of 4.39% during the forecast period 2024-2028. The growth in the agrochemical intermediates market can be attributed to its extensive range of applications, cost-effectiveness, high level of environmental sustainability, and minimal regulatory compliance requirements. Amines are versatile intermediates that find utility in the production of various agrochemicals, encompassing herbicides, fungicides, insecticides, and plant growth regulators. This broad spectrum of applications makes amines a preferred choice for companies operating in the agrochemical intermediates sector. Furthermore, amines hold appeal for companies in this market due to their compliance with regulatory requirements. For instance, amines are commonly utilized in the synthesis of agrochemicals that have received regulatory approvals from entities such as the Environmental Protection Agency (EPA) in the region. This adherence to regulatory standards contributes to the growth of the North America Agrochemical Intermediates Market throughout the forecast period.

### Application Insights

Based on the application, the herbicides segment is expected to register the highest growth of 4.46% during the forecast period, 2024-2028. This trend can be attributed to the expansion of agriculture activities, the opportunity for innovative solutions, and



supportive government policies. Herbicides play a vital role in weed control, ultimately leading to higher crop yields and improved food security. The application of herbicides enables the development of customized solutions tailored to different crops and geographic regions. This flexibility allows companies to distinguish themselves in the market by providing specialized solutions that cater to the specific requirements of their customers. The surge in herbicide demand, driven by increasing food requirements and the emphasis on sustainable agricultural practices, is driving the growth of the North America Agrochemical Intermediates Market in the forecast period.

### Country Insights

United States will witness fastest growth during the forecast period, 2024-2028. This is because United States has a substantial agricultural sector that produces a wide variety of crops, including grains, oilseeds, fruits, vegetables, and more. The need for agrochemicals, including intermediates used in the production of pesticides and fertilizers, remains high to support this extensive agricultural activity. Moreover, supportive government policies and regulations related to agriculture and environmental sustainability contribute to the demand for agrochemical intermediates. These policies often encourage the use of agrochemicals that are safe for both crops and the environment.

### Key Market Players

Dow Inc.

Eastman Chemical Company

Noah Chemicals Corporation

Adama Agricultural Solutions Ltd

AGC Chemicals Americas, Inc.

GFS Chemicals, Inc.

### Report Scope:

In this report, the North America Agrochemical Intermediates Market has been segmented into the following categories, in addition to the industry trends which have

also been detailed below:

#### North America Agrochemical Intermediates Market, By Product Type:

Amines

Alkyl Amines

Aldehydes

Acids

Others

#### North America Agrochemical Intermediates Market, By Application:

Herbicides

Insecticides

Fungicides

Nematicides

Others

#### North America Agrochemical Intermediates Market, By Country:

United States

Mexico

Canada

#### Competitive Landscape

**Company Profiles:** Detailed analysis of the major companies present in the North America Agrochemical Intermediates Market.

*North America Agrochemical Intermediates Market, By Product Type (Amines, Alkyl Amines, Aldehydes, Acids, Othe...*

#### Available Customizations:

The North America Agrochemical Intermediates Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

#### Company Information

Detailed analysis and profiling of additional market players (up to five).

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