

A close-up photograph of a scientist in a white lab coat and safety glasses. The scientist is holding a glass test tube in their left hand and a glass pipette in their right hand, carefully dispensing a drop of liquid into the test tube. The background is blurred, showing other laboratory equipment like a balance scale. The overall tone is professional and scientific.

CHEMICAL MANUFACTURING

Formulate a solution for greater success

 Microsoft Dynamics

Chemical manufacturers must successfully juggle complex formulas and recipes, comply with regulatory and customer mandates, and manage a wealth of compound-specific characteristics such as shelf life, potencies, and unit-of-measure conversions. Constantly changing product and packaging variations present operational and inventory challenges and require close interaction between research and development (R&D) labs, procurement, production, and marketing.

Meanwhile, a tough global marketplace dictates ever-increasing efficiency, faster time-to-market, shorter order lead times, and comprehensive management of product life cycles from new product introduction to retirement.

In this unique environment, business solutions designed for discrete manufacturing do not work effectively for chemical manufacturing companies. Yet few manufacturers can afford the inefficiency of manual processes and stand-alone software and systems.

Rise above market and industry pressures and give your people the tools they need to drive your business forward with Microsoft Dynamics™, business management solutions configured specifically for process and mixed-mode manufacturing. With Microsoft Dynamics solutions for chemical manufacturing, you can:

- **Optimize operations** by monitoring real-time inventory levels, production schedules, energy use, and manufacturing processes to efficiently schedule batches.
- **Track all manufacturing operations for streamlined regulatory compliance** and to permit efficient product recalls if required.
- **Take advantage of market demand, supply chain, and plant manufacturing visibility** to optimize manufacturing capacity, raw material and finished goods inventories, co-products, by-products, and outsourced production opportunities.

- **Connect R&D with customer requests**, raw materials procurement, production planning, and sales to speed time-to-market for new or improved products.
- **Manage unlimited numbers of formulas and recipes** incorporating variables such as potency, catch weight, and yields.
- **Enhance quality assurance** by tracking production statistics and comparing them against customer or internal specifications.
- **Create multi-dimensional inventory records** that track product-specific traits including shelf life and lots.
- **Measure industry- and customer-specific key performance indicators (KPIs)** and easily disseminate them with familiar desktop software.

An end-to-end business solution, Microsoft Dynamics can integrate these key business processes and support efficient, collaborative work based on common information and tools. In addition to helping you save time, money, and manual effort, integrated software systems can enhance the bottom line by offering greater management insight, streamlined regulatory compliance, and flexibility to adapt to changing conditions and needs.





Manage formulas and inventory efficiently

Complex product formulas and recipes can change frequently to reflect variations in material supply, product packaging, manufacturing processes, raw material characteristics, and product development. A flexible information system can help you move beyond the manual records and spreadsheets often encountered in production and R&D labs to integrate development directly with formula management, inventory information, procurement, and production planning. After production begins, formulas can be automatically adjusted based on actual raw material characteristics to help ensure consistent quality from one lot to the next, with yields tracked by standards identified in the formula.

People can effectively select or modify formulas, plan production, replenish inventory, and simplify quality assurance when they can track product-specific materials characteristics such as potency, shelf life, catch weight, classifications, lots, and units of measure. By capturing complete information early in the product life cycle and integrating it into the order management and financial information systems, your organization can respond quickly, improve accuracy, and gain insight for informed, confident decision-making.

Give people the information they need to succeed

From laboratory technicians to the sales team, people across your organization need access to different types of product, process, production, and customer information. Providing centralized access to reliable and up-to-date information can help increase efficiency, enhance customer service, streamline compliance tracking or reporting, and reduce errors resulting from incomplete or outdated information.

With the integration and portal solutions built into Microsoft Dynamics, your people can have a window into the KPIs, real-time business information, and critical processes they need to work and collaborate effectively. Portals can also help



employees, customers, and suppliers share documents such as formulas, timelines, regulatory requirements, or customer needs, helping to facilitate collaboration between research, production, suppliers, and sales. User-based access and robust security features help protect sensitive information while keeping it accessible to appropriate team members.

Track production, quality, and compliance

Compliance with increasingly complex regulatory and customer mandates requires chemical manufacturers to manage and quickly pinpoint production, raw material, and source information amid a sea of details. A Microsoft Dynamics solution can provide the integrated information, comprehensive lot and production monitoring, and end-to-end transparency for full traceability. You can track materials and production statistics from supplier to customer, identifying every action taken for a specific formula, batch, or operator involved in the manufacture of a given product. Compliance documentation and product recalls, if required, become easier and faster to manage when you can access comprehensive information across the supply chain.

Quality assurance (QA) also becomes easier with real-time intelligence and alerts that can support fast, proactive, and informed responses to quality variations or unexpected conditions. You can streamline QA processes for quality monitoring, testing, quarantine, and product downgrading by integrating laboratory and production management systems, enabling you to easily communicate the results to your customers, suppliers, or governmental agencies.

Connect and automate

Manual processes meant to overcome disconnected production, laboratory, customer, order entry, procurement, and financial systems can slow product development and production cycles. Using built-in integration capabilities and Web services, Microsoft Dynamics can help you connect internal systems and extend appropriate information to

your customers and suppliers. As a result, you can automate business and production processes, speed transactions, and gain the insight you need to make operational improvements. Plus, you can efficiently schedule production, define routings, and plan for co-products or by-products with complete information about order specifications, recipes and formulas, packaging variations, and delivery needs. You can alter formulas on the fly, implement just-in-time or vendor-managed inventory, manage source traceability, give customers access to order status, and enable adoption of radio frequency identification (RFID) in the warehouse.

Improve management insight

To help you optimize performance, Microsoft Dynamics offers an integrated, easy-to-use financial management solution with robust reporting and analysis tools. General ledger, billing, payables, receivables, fixed assets, payroll, and other applications are all designed to work smoothly together to help managers maximize cash flow, understand and allocate costs, ensure accurate pricing, and optimize profitability. Flexible, multilevel analysis and reporting tools make it possible to view and correlate financial data by any criteria. Managers can create tailored reports that are easily understood, presented, and distributed in appropriate formats—including Microsoft® Office Excel® spreadsheets.

Optimize performance

Microsoft Dynamics offers integrated business applications and services that work with existing Microsoft technologies to help connect your R&D, operations, supply partners, and customers. The production planning, financial, customer relationship, and supply chain management applications work with Microsoft products such as the Microsoft Office system and the Microsoft Windows® operating system. Together these familiar tools can help people further streamline processes and put real-time information at the fingertips of employees and partners throughout the supply chain. Your employees can gain the insight and agility to plan strategically and execute with confidence.

STREAMLINE

Innovative integration

Microsoft Dynamics has been designed to deliver a flexible set of solutions that can be easily adapted to your business needs. Built on the Microsoft Windows Server® platform, Microsoft Dynamics enables you to take advantage of technologies such as Microsoft Windows SharePoint® Services for knowledge management and collaboration, and Windows Terminal Services for extending access to business data and processes. Web services can help integrate machine control applications and extending information and processes to suppliers, customers, and others in your corporate network. Microsoft SQL Server™ delivers a solid foundation for collecting, analyzing, and reporting data across your organization.

Deep integration with Microsoft Office system programs such as Microsoft Office Excel, Microsoft Office Word, Microsoft Office Outlook®, Microsoft Office SharePoint Server, and Microsoft Office Visio® enables you to design information formats and delivery systems that best suit your company's needs. This integrated systems approach can give your organization great flexibility and efficiency to capture, analyze, and communicate information and make informed, confident business decisions.

Partners with industry expertise

Microsoft understands that chemical manufacturers need technology partners with deep industry expertise to accurately address their unique business processes and information requirements. Microsoft Dynamics solutions are delivered by a global network of partners and independent software vendors who are focused on the specific needs of process, batch, and mixed-mode manufacturing organizations. Microsoft Certified Partners who have this special expertise can provide local, personalized service—from planning, customization, and

implementation to ongoing support and training. That means Microsoft Dynamics customers get world-class business solutions from professionals who understand their needs and will be there as the business grows and changes. In addition, Microsoft-certified independent software development partners can provide applications designed specifically for chemical manufacturing that integrate with Microsoft Dynamics products to help deliver comprehensive solutions to manufacturers worldwide.

Plan for growth

To succeed over the long term, companies need systems that can meet current needs with a strong return on investment (ROI). They also need systems that can scale dramatically in response to business growth, acquisitions, new markets, strategic redirection, or other foreseeable changes. Microsoft Dynamics, along with Microsoft server technologies and productivity solutions, offers tremendous flexibility and scalability, enabling companies to both meet today's requirements and prepare for substantial future growth and change.

Gain a competitive advantage

Attractively priced and easy to use, Microsoft Dynamics gives chemical manufacturers control of their processes, increased efficiency, and real-time information throughout the product life cycle and across the supply chain. Tightly integrated processes and tools can help streamline product development, customer relationship management, marketing, and the sales and distribution cycle for fast time-to-market, increased customer satisfaction, and improved profitability.

To learn more about how Microsoft Dynamics can deliver a competitive advantage for chemical manufacturers, visit www.microsoft.com/dynamics/industry/manufacturing.mspx



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Microsoft Dynamics is a line of integrated, adaptable business management solutions that enables you and your people to make business decisions with greater confidence. Microsoft Dynamics works like and with familiar Microsoft software such as Microsoft Office programs, which means less of a learning curve for your people so they can get up and running quickly and focus on what's most important. Built to work with Microsoft technologies, it works easily with the systems your company already has implemented. By automating and streamlining financial, customer relationship, and supply chain processes, Microsoft Dynamics brings together people, processes, and technologies to help increase the productivity and effectiveness of your business, and help you drive business success.

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