



Dow Quality Management System Manual

A Corporate Overview

Introduction

This manual describes, in a condensed format, the Quality Management System of Dow. It includes:

- Company Overview
- Dow's Quality Policy
- Dow's Customer-Centricity
- Dow's Corporate and Business Quality System Structure
- The Dow Quality Management System
- Continual Improvement and Operational Reliability
- Quality Measurement Systems
- Employee Engagement
- Responsible Care®, Environmental, Social, and Governance (ESG)
- Concluding Remarks

The manual has two purposes:

- It briefly outlines the company's quality standards.
- It provides an easy-to-follow overview of the quality system for use by customers and other interested audiences.

Company Overview

At Dow, we're guided by our purpose – to use our materials science expertise in collaboration with our partners to help deliver a sustainable future. Our ambition to be the most innovative, customer-centric, inclusive, and sustainable materials science company in the world drives best-in-class performance and a culture where new ideas thrive.

We are:

- **Innovative.** Alongside our customers, we create the materials and solutions that transform our world.
- **Customer-centric.** We aim to be easy, enjoyable, and effective to do business with through all our digital and personal interactions.
- **Inclusive.** We champion a fully inclusive workforce that reflects the world in which we do business, because it's the right thing and smart thing to do.
- **Sustainable.** In everything we do, we strive for positive impact on society and the planet.

Dow's integrated, market-driven, industry-leading portfolio of Packaging and Specialty Plastics, Industrial Intermediates & Infrastructure, and Performance Materials and Coatings delivers a broad range of technology-based products and solutions.

Further information may be obtained at the [Dow](http://www.dow.com) web page at www.dow.com.

Dow's Quality Policy

Quality Performance is a commitment to excellence by each Dow employee. It is achieved through teamwork and continual improvement.

We are dedicated to being a leader in providing quality products and services that meet or exceed the requirements of our customers and all of our key stakeholders.

Quality management plays an important role by ensuring that the company can reliably produce and deliver the quality products and services expected by our customers.

Dow's Customer-Centricity

Customer Experience is defined as the end-to-end experience our customers, prospective customers, and distributors have at every touchpoint of their journey with Dow, how they feel about those experiences, and how their feelings impact their behaviors. Our goal is to make every customer experience easy, enjoyable, and effective.

- **Easy** – Dow designs services to meet the evolving needs of customers, so interactions are simple, intuitive, and effective.
- **Enjoyable** – Dow shares our customers' passion for innovation with an openness and agility that makes working with our people a pleasure
- **Effective** - Dow earns our customers' trust with consistent quality and supply while partnering to improve their business and the planet.

Our systematic approach drives customer-centricity:

- We listen to our customers: Our customers are invited to provide feedback by participating in our Dow Experience Survey. Our team might follow-up with customers directly regarding some of the feedback provided to get a better understanding of their needs.
- We take action for our customers: Our customers' feedback goes to the right stakeholders within Dow (Customer Service, Supply Chain, R&D, Commercial, etc.). We take action to improve pain points, such as Customer Care Centers, Dow.com launch, and Sampling Improvement Initiatives.

Dow's Corporate and Business Quality System Structure

Dow has a hybrid quality infrastructure and support organization to assist business management in globally implementing and adopting the corporate Quality Management System, including related Information Technology applications and work processes, in a consistent and coordinated manner. Under the direction of the Senior Vice President of Operations, the Product Quality Director leads and is accountable for deploying the cross-functional strategy for Dow's Quality Management System throughout the company.

Business Quality Leaders are responsible for developing and implementing quality strategies that address the specific needs of their businesses and markets, in alignment with the centralized infrastructure, whether it is in supplying bulk quantities of basic chemicals or small volumes of highly specialized materials. The Business Quality Leaders are accountable for the implementation of both corporate and business systems, policies and standards that ensure quality products and services are delivered to Dow's customers. The leaders monitor the performance of the system and use data to drive improvement opportunities.

The Dow Quality Management System

Purpose

Ensuring quality is a multi-functional effort covering many aspects of Dow's operations. It is a continual process involving:

- identification and documentation of customer needs
- development, manufacture and delivery of products and services to meet those needs consistently
- feedback from the customer to assess the company's performance
- action on performance trends and customer feedback to improve the company's performance.

Developed and endorsed by company management, the Dow Quality Management System is part of an integrated corporate management system, encompassing the requirements of numerous external standards and internal company requirements. Dow's quality management system conforms, at minimum, to specified requirements of international standards, like ISO 9001.

Product and service quality are maintained through work process and quality architecture standardization, and process control and automation. Service quality covers all aspects of customer transactions and is ensured by the function that is providing the service. Both product and service quality characteristics are agreed upon by Dow and the customer.

Quality Leadership

Dow Leadership takes a visible and leading role in creating and sustaining the quality management system, through:

- Establishing core values, policies, performance expectations,
- Communicating the quality strategy
- Obtaining feedback on the quality management system – including information technology and work process elements
- Identifying necessary product realization and support processes
- Creating an environment encouraging the growth and involvement of people
- Providing necessary infrastructure and resources
- Focusing on customer satisfaction, and
- Continual improvement

Dow Quality Leaders review the management system with top management to ensure the overall system's continuing suitability, adequacy, and effectiveness, and to initiate and/or leverage changes and improvements.

Resource Management

Dow ensures that the resources to achieve its objectives are identified and made available, in part through Dow's work processes for leading people, planning, and allocating resources and managing information.

Training and employee development plans support the company's overall strategy to be a learning-centric organization. Required and recommended internal training courses are provided and documented to ensure the competence of all employees in their intended roles. Additionally, external training options and quality role networks are available that provide an outside-in perspective, complimenting the internal training options. Dow supports internal networks to encourage growth and development.

Operational Planning and Control

Dow's product realization and support work processes are fully integrated and organized to provide the capability to meet the needs of our customers and other key stakeholders. Management of change is consistently applied by employees to assure changes to our work processes, procedures, specifications have appropriate reviews and approvals. Training is conducted, documentation is updated, and appropriate communications are made, including customer notifications, as appropriate.

Dow's Commercial organization operates to meet the needs of Dow customers and businesses, through an integrated approach to Sales, Marketing, and Customer Service. Communicating effectively with customers, understanding customer needs, and ensuring these expectations are translated into requirements for Dow's product fulfillment processes are essential aspects of what this organization does.

All products and services sold by Dow, as well as raw materials used in manufacturing and product packaging, are defined by specifications. Specifications reflect Dow's commitment to the requirements needed at each stage of manufacture and distribution to meet the customers' overall requirements for the final, delivered products.

Dow's Research and Development organization has implemented processes to respond effectively and efficiently to the needs of our customers. Dow's comprehensive Research and Development process considers many factors and customer inputs in designing products, including life cycle, safe handling practices, and product disposal.

Dow's Purchasing work process ensures that procured services and purchased goods are controlled to conform to specified requirements. Because purchased materials, goods and services directly affect the quality of Dow's products and services, Dow has a process for developing an appropriate supplier evaluation and development process to help ensure that all purchased materials, goods, and services conform to Dow-specified requirements. Efforts are made to establish a close working relationship and feedback system with suppliers to ensure the highest value in terms of quality.

Dow's processes for planning and manufacture of products are carried out under controlled conditions via established procedures. This includes detailed descriptions of the products and process conditions, the means of testing or monitoring products to ensure they meet specified requirements at all stages of manufacture, and the conditions to ensure products maintain integrity until delivery to the customer. All Dow packaged products are labeled to ensure clear, unambiguous identification of the product along with appropriate manufacturing, health, safety, and environmental information in compliance with all regulatory, product stewardship and/or customer requirements.

Performance Evaluation

Measuring performance trends, prioritizing opportunities, and initiating improvement projects, are processes used by Dow to drive business excellence. Customer input and key business performance indicators are important contributors to assessing overall company performance - understanding how well we are meeting current needs and gaining critical insight as to how we can better serve our customers in the future.

In assessing our internal performance, each organization monitors key performance indicators in addition to conducting periodic audits and self-assessments to verify that processes are consistent with specified requirements and the intent of the quality management system.

Processes for monitoring and measuring products and equipment are in place to ensure that specified requirements are met throughout the product realization process. Should products not conform to requirements, actions are taken to ensure that the non-conforming material is isolated and managed in an appropriate manner.

Dow's process for corrective and preventative actions is designed to ensure that issues are properly identified, appropriate investigations are conducted, follow-up actions are completed - focused on preventing recurrence - and communication of the resolution is sent to impacted stakeholders.

Continual Improvement and Operational Reliability

Dow has embraced a policy of Continual Improvement and provides a host of best-in-class services and/or solutions to all Dow Businesses and functions globally. Dow utilizes a number of key processes, tools and methodologies (i.e., investment planning, goal setting, etc.) to identify strategic opportunities and drive improvements across all aspects of the quality management system that enable optimum performance and success, promoting an ownership and future-focused mind-set.

Operational Reliability encompasses how we effectively design, operate, and maintain our assets to deliver products safely and reliably to our customers.

Dow strives to be a Highly Reliable Organization (HRO) by applying the following reliability principles:

- **Expect the unexpected:** Identify potential causes for unplanned events and define detection and prevent strategies and action plans.
- **Do not generalize:** Treat unexpected data with concern - dig deeper than symptoms to understand root causes and drive long-term fixes.
- **Identify trends and anticipate impact:** Understand the big picture as well as the details - develop solutions, not workarounds.
- **Commit to resilience:** Strengthen our ability to detect, contain and bounce back quickly from unplanned events.
- **Engage and apply expertise:** Recognize that expertise does not equal rank - empower day-to-day subject matter experts to act and make key decisions.

Quality Measurement Systems

Dow uses real-time and point-in-time data to evaluate its progress in continual quality improvement. Some tools used to monitor performance and progress in each business include external and internal customer surveys, auditing, organizational self-assessments, performance metrics, and statistical tools.

Dow is on a journey towards a real-time enterprise to advance and expand our digital platforms. This includes digitalization of Dow's manufacturing operations that will power decision-making through real-time access to data analytics. This will increase productivity, quality performance and continual improvement, enhance manufacturing flexibility to respond to customer demands, track product availability in real time, elevate safety, and advance Dow's manufacturing and market competitiveness.

Employee Engagement

At Dow, we believe in putting people first. Our people are using their unique perspectives and backgrounds to find new ways to solve challenges and meet or exceed customer expectations in an environment of inclusion, diversity, and integrity. Each Dow employee has a role to play in providing quality products and services which meet or exceed the expectations of our customers.

As outlined in Dow's Code of Conduct, we strive to create an environment of mutual respect, free from harassment and unprofessional behavior. We measure success not only by the results we achieve, but also how we achieve them. Decisions and actions must be driven by the highest sense of business and professional integrity. The result is a safe and trusting work environment, a more unified team and ultimately, a company culture that offers each employee an opportunity to succeed and feel valued.

Respect for people is measured by how we include and treat each other, by the contributions that flow from our diversity, by the productivity and effectiveness of our relationships, and by having the sense of a “job well done” upon completion of strategic projects and planned initiatives.

To foster an environment where involvement, continual improvement, and teamwork (including cross-functional teamwork) flourish, managers are encouraged to:

- treat employees as valued team members
- actively solicit ideas on problems and solutions from all people in the work group
- remove strategic barriers as identified by employees
- empower people to make decisions and implement solutions
- push decision making down to the lowest possible and practical level
- collaborate with the entire work group to develop a mission.

Our workforce is comprised of exceptionally talented employees. Each individual’s skill and willingness to work as ‘One Team’ makes us one of the most competitive companies in the industry.

Every day, we are committed to building a vibrant, diverse, and talented employee-base, investing in each employee’s growth and development through professional training and mentoring, community involvement and team building.

Our training programs are designed to challenge our employees and prepare them for their current position as well as the next step in their careers.

Responsible Care®[®], Environmental, Social, and Governance (ESG)

Responsible Care® is a voluntary initiative of the global chemical industry to safely handle our products from inception in the research laboratory, through manufacture and distribution, to ultimate reuse, recycle and disposal, and to involve the public in our decision-making processes. In January 2008, Dow signed on to these more stringent Responsible Care Guiding Principles with other members of the U.S. American Chemistry Council (ACC). These Principles apply to Dow globally and are managed through the implementation and compliance with our internal Operating Discipline Management System (ODMS). Dow re-affirmed these principles signing on to the revised Responsible Care Global Charter in 2015.

We’re working to deliver a sustainable future by collaborating and innovating to expand our ability to make a positive impact across our businesses, and on society and the planet. As a leading materials science company, we have the responsibility and opportunity to act and lead the industry in areas where our science and innovation can make a difference. This means we are reducing our environmental footprint, developing and implementing circular economy solutions, and creating new materials that are more sustainable. Climate Protection, Circular Economy and Safer Materials are critical to our license to operate and represent areas where we are using our science, scale and global relationships across our value chains to create shared opportunity for Dow and society.

Dow’s ESG report focuses on four strategic areas of action: Environmental Performance; Inclusion, Diversity & Equity; Community; and Corporate Governance. These areas reflect how we are working as a team to deliver solutions to global challenges and create lasting value for our customers, communities, employees, and businesses

To accelerate our sustainability agenda, we set multi-decade targets in 2020 to put us on a path to achieve carbon neutrality and eliminate plastic waste. These goals are 10-year commitments aimed at magnifying our company’s positive impact through collaboration with like-minded partners and built upon our 2025 Sustainability Goals.

Our sustainability reporting reflects our commitment to continual improvement, leadership, and transparency.

Concluding Remarks

Dow’s condensed Quality Management System manual summarizes an overview of the company, Dow’s Quality Policy, the resources and commitment to quality, and a description of the quality management system processes. Dow works to ensure our customers receive quality, reliability, and integrity in the products and services that we provide, enhancing the customer experience by meeting the evolving needs of customers and earning customer trust.

Further information may be obtained at the Dow web page at www.dow.com.