

**Novolyze**

# **SMART Validation**

**A Comprehensive Guide to  
Your Next-Gen FSQ Solution**



# Contents

<b>SMART Validation – A Comprehensive Guide to Your Next-Gen FSQ Solution</b>	<b>3</b>
<b>The Importance of Process Validation</b>	<b>4</b>
<b>Introducing Novolyze’s SMART Validation</b>	<b>5</b>
<b>Understanding How Novolyze’s SMART Validation Works</b>	<b>6</b>
<b>Exploring the Benefits of Novolyze’s SMART Validation</b>	<b>8</b>
<b>Summary</b>	<b>10</b>
<b>About Novolyze®</b>	<b>11</b>

# SMART Validation – A Comprehensive Guide to Your Next-Gen FSQ Solution

The digitalization of food safety solutions has become of paramount importance in food processing plants. Recent years have witnessed increasingly high-profile incidents of foodborne pathogen outbreaks and recalls, underscoring the critical need for next-gen food safety controls.

To bolster food safety in facilities, one approach has been to validate the efficacy of food processing equipment from a food safety standpoint. Process validation involves demonstrating that a production process consistently yields microbiologically safe food. The traditional validation method relies on the evaluation of process capacity to reach target log reduction under a fixed “worst-case scenario” set of process parameters. This approach allows to evaluate scientifically the efficacy of a process but doesn’t allow to optimize processing parameters, e.g., to reduce over-processing. Also, validating a process at a given moment is not a guarantee that process is always properly applied.

In this ebook, we will explore the importance of validation and introduce Novolyze’s SMART Validation™, a cloud-based solution designed to assist food and beverage companies in thoroughly validating their processes and ensuring regulatory compliance. We will delve into the benefits of SMART Validation™, examine its functioning, and the importance of the solution. By the end, you will have a comprehensive understanding of the critical role played by process validation in general and the advantages offered by SMART Validation™.



# The Importance of Process Validation

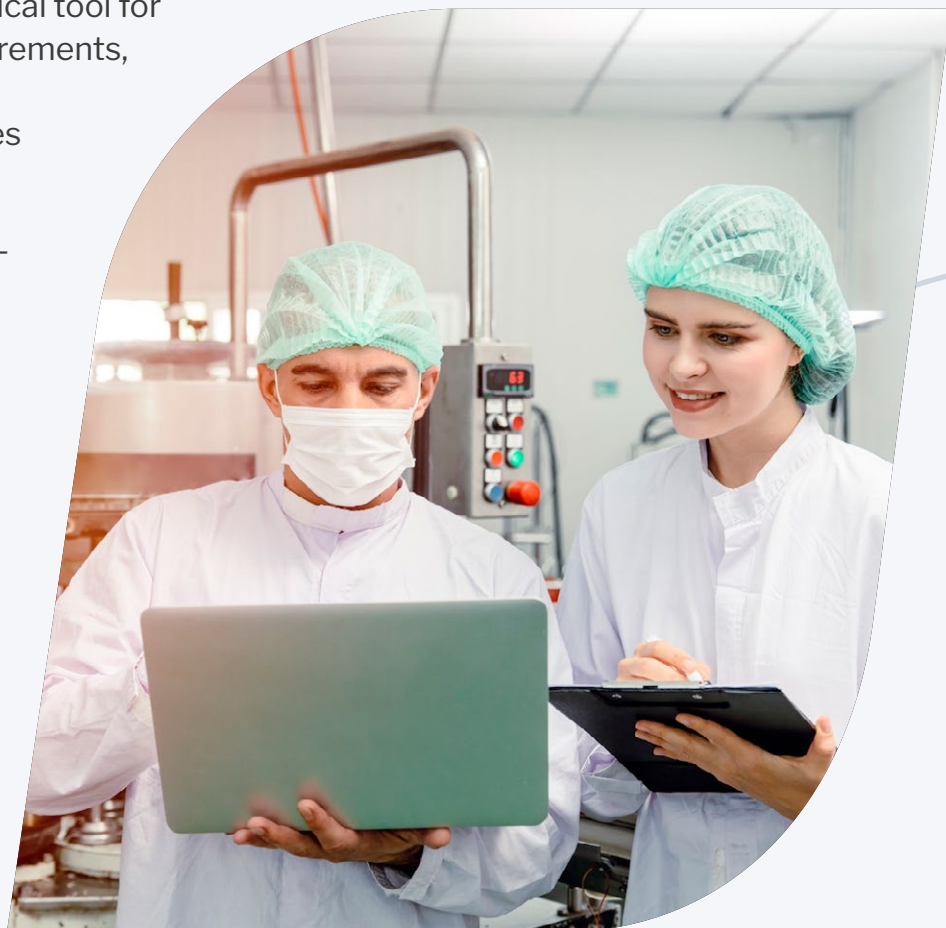
While preventive measures such as Good Manufacturing Practices (GMPs) and Hazard Analysis and Critical Control Points (HACCP) systems are essential in food processing, validation serves as a vital component in guaranteeing the effectiveness of these processes.

Validation is the process of providing scientific evidence to demonstrate that a process consistently produces safe food. It involves conducting studies, experiments, and analysis to verify the effectiveness of the preventive measures in place. The goal is to ensure that the identified hazards are controlled or eliminated to an acceptable level.

Validation is essential for several reasons. Firstly, it provides assurance that the implemented food safety controls are effective in reducing or eliminating hazards, thereby safeguarding public health. Secondly, it helps establish the reliability and consistency of the production process, ensuring that safe food is consistently delivered to consumers.

Thirdly, validation serves as a critical tool for compliance with regulatory requirements, demonstrating that a company is following the necessary guidelines and standards.

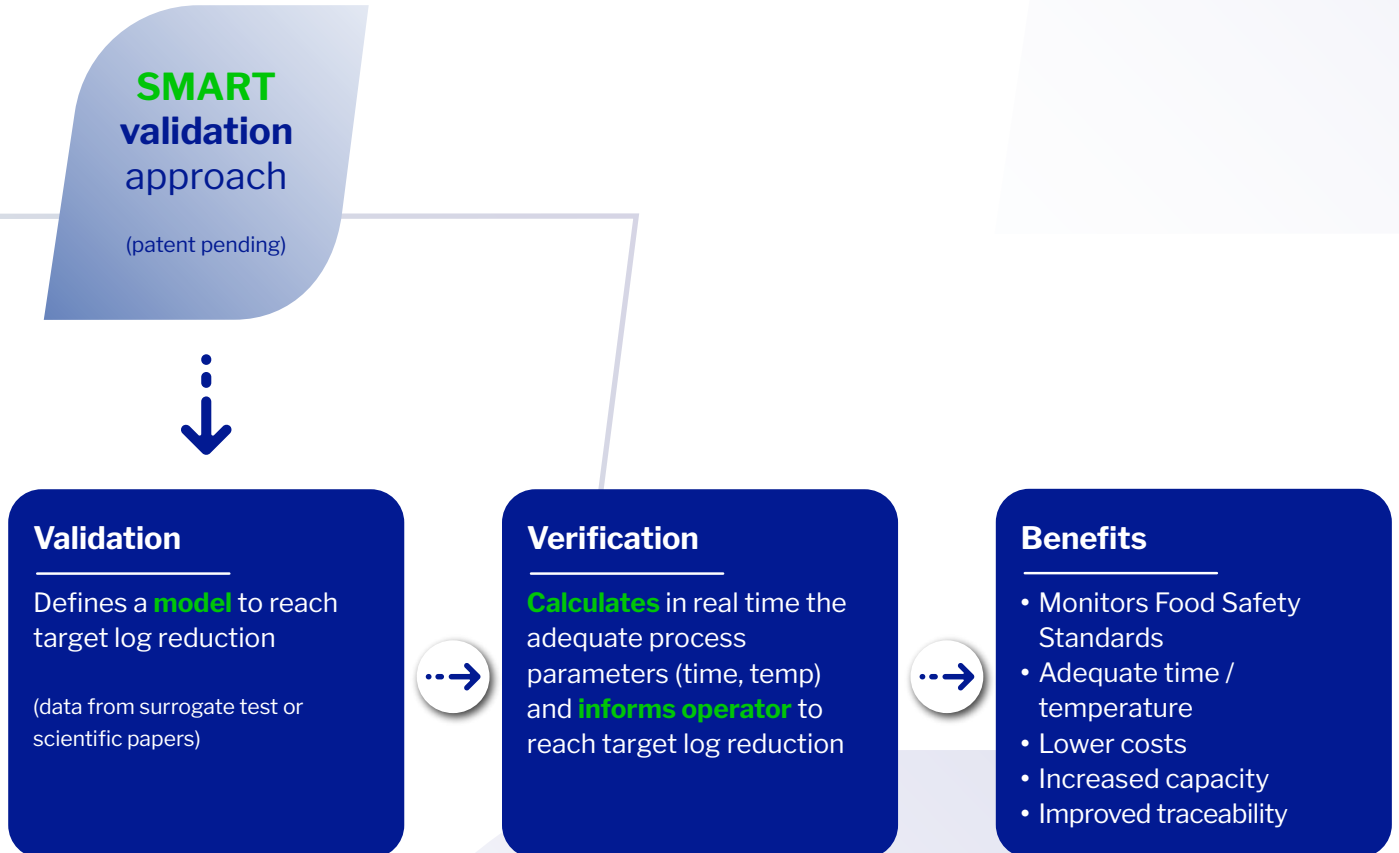
By conducting thorough and well-documented validation studies, food processing plants can identify potential risks, evaluate the effectiveness of control measures, and make informed decisions to mitigate those risks. This proactive approach not only protects consumers but also helps businesses maintain their reputation and competitiveness in the market.



# Introducing Novolyze's SMART Validation

To address the need for optimized process validation, Novolyze has developed an innovative solution called SMART Validation. This cloud-based tool is specifically designed to assist food and beverage companies in validating their processes and complying with regulatory food safety programs. By leveraging real-time data acquisition, verification algorithms, and batch-specific compliance certificates, SMART Validation ensures proper application of processing parameters for the production of safe food products.

SMART Validation is grounded in sound scientific principles and cutting-edge technology. It combines the power of data acquisition, analytics, and cloud-based solutions to provide companies with actionable insights and real-time validation capabilities.



# Understanding How Novolyze's SMART Validation Works

To fully comprehend the capabilities of SMART Validation, it is essential to delve into the inner workings of the solution. By understanding the process flow and the technology behind it, companies can effectively implement and leverage the power of SMART Validation.

## IDENTIFICATION OF TREATMENT STEPS:

SMART Validation begins by identifying the critical treatment steps that require validation. These steps can vary depending on the specific food production process. It is essential to identify the areas where potential hazards can arise and ensure that these steps are thoroughly evaluated during the validation process. By focusing on the most critical aspects of the production process, SMART Validation optimizes the allocation of resources and ensures effective risk management.

## REAL-TIME DATA ACQUISITION:

Real-time data acquisition is a core component of SMART Validation. Data is collected directly from the processing site, ensuring accurate and up-to-date information. This real-time approach allows for immediate analysis and detection of any deviations or under-processing areas. By capturing data as the process unfolds, companies can proactively address potential risks and maintain control over the production process. The data acquisition process is designed to be seamlessly integrated into existing systems, minimizing disruption to operations.

## COORDINATION OF VALIDATION STUDY:

SMART Validation involves the coordination of a validation study by Process Authorities. These experts work closely with the food processing plant to develop a comprehensive validation plan. Depending on the specific needs and circumstances, either surrogate or modeling techniques may be employed. Surrogates are non-pathogenic microorganisms used to mimic the behavior of the target pathogens when exposed to a specific stress, such as food processing treatments. Novolyze uses the patented and award-winning SurroNov<sup>®</sup>, which is the first range of dry, ready-to-use, surrogate bacteria for process validation. Modeling techniques leverage computer simulations to predict the effectiveness of food safety processes. The coordination of the validation study ensures that the process is tailored to the specific requirements of each food processing plant.

## REAL-TIME VERIFICATION ALGORITHMS:

SMART Validation leverages advanced verification algorithms to analyze the data collected during the processing of each batch. These algorithms compare the collected data to predetermined safety thresholds, allowing for an accurate assessment of the level of pathogen reduction achieved. By employing sophisticated analytics, SMART Validation identifies deviations or under-processing areas, enabling prompt corrective actions. The real-time nature of the verification algorithms ensures that potential risks are detected and addressed immediately, minimizing the chances of compromised food safety.

## DIGITAL TRACING AND COMPLIANCE CERTIFICATES:

To enhance traceability and compliance, SMART Validation generates batch-specific compliance certificates. These certificates serve as tamper-proof records, providing a comprehensive overview of the validation process for each batch. They contain detailed information about the validation study, including the treatment steps evaluated, the pathogen reduction achieved, and any corrective actions taken. These compliance certificates simplify auditing procedures, making it easier for companies to demonstrate compliance with regulatory requirements. They also enhance transparency and accountability, ensuring a robust record of the validation process.



## MANAGEMENT OF CORRECTIVE AND PREVENTIVE ACTIONS (CAPAS):

SMART Validation manages Corrective and Preventive Actions (CAPAs) within the cloud-based platform. When deviations or under-processing areas are detected, the solution facilitates the swift initiation of corrective actions. These actions are tracked and managed within the platform, streamlining the process of remediation. By centralizing CAPAs in the cloud, SMART Validation expedites the remediation process, ensuring prompt and effective actions to address potential risks. This feature enhances traceability, compliance, and overall food safety management..

# Exploring the Benefits of Novolyze's SMART Validation

SMART Validation offers numerous benefits to food and beverage companies seeking to enhance their food safety processes. By adopting this solution, companies can improve control over their processes, reduce the risk of recalls, enhance compliance with regulations, and increase consumer confidence. Additionally, SMART Validation is a cost-effective option, making it an attractive choice for businesses of all sizes. This chapter will delve into the advantages provided by SMART Validation, showcasing how it can revolutionize the way companies approach process validation.

## IMPROVED CONTROL OF PROCESSES:

SMART Validation empowers companies to gain better control over their processes. By providing real-time data and analytics, the solution allows for early detection of any deviations or potential risks. This proactive approach enables companies to take corrective actions promptly, preventing potential food safety issues from escalating. With enhanced control, companies can ensure consistent production of safe food products, reducing the likelihood of foodborne illnesses and recalls.

## REDUCED RISK OF RECALLS:

Food recalls can have significant financial implications, damage a company's reputation, and erode consumer trust. SMART Validation minimizes the risk of recalls by validating the effectiveness of food safety processes. By identifying and



rectifying any deviations or under-processing areas in real-time, the solution helps companies produce safe food consistently. This proactive validation approach reduces the likelihood of contaminated products reaching consumers, mitigating the need for costly recalls and associated brand damage.

## ENHANCED COMPLIANCE:

Complying with regulatory requirements is a critical aspect of food processing. SMART Validation simplifies the process of demonstrating compliance by providing batch-specific compliance certificates. These certificates serve as a robust record of production events, ensuring transparency and traceability. By facilitating compliance with food safety regulations, SMART Validation helps companies avoid penalties, maintain their license to operate, and build trust with regulatory bodies.



## INCREASED CONSUMER CONFIDENCE:

Consumer trust is essential in the food industry. SMART Validation enhances consumer confidence by demonstrating a company's commitment to producing safe food. By implementing a science-based and validated food safety system, companies can communicate their dedication to consumer safety. This builds trust among consumers, leading to brand loyalty and positive word-of-mouth recommendations.

## COST-EFFECTIVENESS:

Implementing effective food safety measures is often perceived as a costly endeavor. However, SMART Validation offers a cost-effective solution. By minimizing the risk of recalls and associated financial losses, companies can save substantial amounts of money in the long run. Also, because SMART Validation avoids over-processing, and inefficiencies and risk due to variability, processing efficiency can be maximized, leading to additional throughput and an increased bottom line. Additionally, the scalability of SMART Validation ensures that businesses of all sizes can adopt the solution without incurring exorbitant expenses. This cost-effectiveness makes SMART Validation an attractive option for companies looking to enhance their food safety practices while optimizing their budget allocation.

# Summary

In summary, SMART Validation offers a science-based, user-friendly, and scalable solution for food and beverage companies seeking to validate their processes and ensure compliance with regulatory food safety programs. By incorporating this innovative cloud-based tool into their operations, companies can experience improved control over their processes, reduced risk of recalls, enhanced compliance with regulations, and increased consumer confidence. SMART Validation is a cost-effective option that empowers businesses of all sizes to optimize their food safety practices.

SMART Validation has the potential to transform food safety practices in the industry. By utilizing real-time data acquisition, advanced verification algorithms, and digital tracing capabilities, companies can proactively address potential risks, ensure consistent production of safe food, and meet regulatory requirements. This powerful solution enables companies to protect public health, safeguard their reputation, and enhance consumer trust.

To learn more about how SMART Validation can transform your food safety practices, we encourage you to visit the Novolyze website or contact a Novolyze representative. By embracing the power of SMART Validation, companies can secure a competitive advantage, drive business growth, and contribute to a safer food supply chain.



# About Novolyze®

Founded in 2012, Novolyze® entered the food and beverage market to help companies enhance their food safety and quality performance. Offering numerous application-driven, tech-enabled solutions, Novolyze is here to help food and beverage companies unify data, deliver actionable insights and enable real-time decision-making.

To learn more about Novolyze's IoT and cloud-computing solutions,

**Request a demo today**

**Contact Us**

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