ISOM8™ Qualification Package

Elevated Assurance Program
Raw Materials for Manufacturing:
L-Glutamine

99.0-101.0%, ISOM8™, suitable for cell culture, non-animal source

PMB3001

Elevate Your Process with ISOM8™

The Life Science business of Merck operates as MilliporeSigma in the U.S. and Canada.

www.sigmaaldrich.com

Sigma-Aldrich®

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Introduction

Elevate your Product Documentation

This ISOM8™ qualification package (IQP) simplifies risk assessment for industrial and manufacturing customers by providing comprehensive quality and regulatory documentation. This qualification package includes information on quality systems, manufacturing processes, product characterization, and quality declarations (where applicable).

Additionally, ISOM8™ products can be supported with quality agreements and enhanced change control.

PMB3001 L-Glutamine 99.0-101.0%, ISOM8™ is intended for research or further manufacturing use only. Not intended for direct use in humans or animals. TSCA-exempt use only in US.

This material is neither produced nor managed by us under recognized good manufacturing practices (GMP).

1. Product Information And Certificates

1.1. Product Offering

The following product code was qualified by Site Quality Assurance to meet the assigned quality attributes.

Cat. No.	Product Description	M-Clarity Segment	1KG	5KG	10KG	Configurable Packaging
PMB3001	**L-Glutamine** 99.0-101.0%, ISOM8™, suitable for cell culture, non-animal source	**MQ400**	✓	✓	✓	✓

1.2. Site of Manufacturing, Testing, Packaging, and Release

Site Description	Site Information
Site of Testing (Dekalb site)	Sigma-Aldrich Corporation 3500 Dekalb Street, St. Louis, MO 63118 USA
Site of Packaging (Cherokee site)	Sigma-Aldrich Corporation 3300 South 2nd Street, St. Louis, MO 63118 USA
Site of Release (Dekalb site)	Sigma-Aldrich Corporation 3500 Dekalb Street, St. Louis, MO 63118 USA

1.3. Product Experience and Verification

1.3.1. Product Sourcing and Handling

With years of experience sourcing, handling, and testing L-Glutamine and related raw materials for the diagnostics market, we work exclusively with trusted, high-quality suppliers. Supplier history and performance are regularly reviewed, and risk assessments are performed as needed to identify and

monitor critical quality attributes, such as raw material specifications, process controls, and packaging requirements. Additionally, controls for primary packaging components are established and documented for the product included in this dossier.

1.3.2. Product Verification Statement

We ensure that our qualified suppliers maintain appropriate process and quality controls. Product documentation and test records confirm that materials sourced meet agreed specifications and quality standards. Our internal verification processes and quality checks provide confidence that each batch conforms to the applicable product requirements.

1.3.3. Analytical Verification Statement

The analytical methods have been verified to sufficiently perform the final batch-specific testing and release per the product specifications. Please contact your **local representative** to request details on an analytical method when certain criteria are met.

1.3.4. Product Certificates

The products is issued with a Specification Sheet detailing the analytical tests and specifications for each product.

A batch-specific Certificate of Origin (CoO) is available on **sigmaaldrich.com** for review.

The product is issued with a Certificate of Analysis (CoA) detailing the comprehensive specifications for each product, the batch-specific testing results and release. Release testing is performed using established protocols.

If you are seeking a certificate for a specific batch, use the **Documents search function**. A Safety Data Sheet is also available via the Documents search function.

2. Shelf Life Statement

For the product covered in this dossier, a product stability review has been completed or is underway following our internal shelf-life program. Stability data and trends are reviewed annually.

3. ISO Certification

3.1. Quality Management System Certificate

As a leader in the Life Sciences industry, we are committed to product quality, manufacturing effectiveness and meeting customer expectations. The site of testing, packaging, and release referenced above is certified to the:

ISO 9001:2015 standard:
Quality management
systems, requirements

4. Site Quality Assessment

A Quality Self-Assessment may be provided in lieu of a customer audit. The site self-assessment covers our quality management system for the following regulated activities: manufacturing, release and packaging of biochemical reagents. It is based on Rx-360 Supplier Assessment Questionnaires which are well-known industry standard.

Rx-360 is a nonprofit international consortium which addresses pharmaceutical and medical device supply chain security. We are an active member. For more information, please refer to Rx-360 (rx-360.org).

St. Louis Cherokee Site Self-Assessment

St. Louis Dekalb Site Self-Assessment

5. Animal Origin Declaration

TSE/BSE-Certificate

PMB3001 **L-GLUTAMINE, 99.0-101.0%, ISOM8(TM), SUITABLE FOR CELL CULTURE, NON-ANIMAL SOURCE**

The note for guidance EMA/410/01 Rev. 3 of the EC considers the requirements of raw materials used for human and veterinary medicinal products. The document introduces risk assessment into the regulatory compliance process for products derived from TSE/BSE-relevant animal species.

We certify that this product is manufactured without the use of raw materials of animal or human origin.

It is of vegetable origin, produced by fermentation.

During processing the product does not come in contact with animal material.

Therefore, the product does not fall under the scope of the above-mentioned guideline and is not concerned by the TSE/BSE issue.

Disclaimer: We would like to point out that the above-mentioned product is not intended for the direct human use, e.g. as an active pharmaceutical ingredient, excipient, cosmetic or food ingredient. Declarations, certificates, or other information are not meant to imply the suitability for these applications. This product information is issued to support our customers in the process of raw material evaluation for an application other than mentioned above.

Eric Guinto
Quality Services

This document has been produced electronically and is valid without a signature.

Date of Evaluation: 03-Dec-2025

Merck KGaA
Corporation with General Partners
Frankfurter Str. 250
64293 Darmstadt, Germany

6. Nitrosamine Information

Product Information regarding Nitrosamine

PMB3001 L-Glutamine

Based on European Medicines Agency's information on nitrosamine impurities and guidance on EMA's website (European Medicines Agency (EMA): Nitrosamine impurities, Guidance for marketing authorization holders) and the US FDA Guidance for Industry (Control of Nitrosamine Impurities in Human Drugs), Marketing Authorization Holders (MAHs) are requested to conduct a risk evaluation with regards nitrosamine formation in their drug products.

The concerned product is not considered in scope of the above-mentioned regulatory notices. It is manufactured as per ISO9001 and not intended for direct human or animal use, as stated on the label. Certificates or other information are not meant to imply the suitability for these applications. This product information is issued to support our customers in the process of raw material evaluation for an application other than mentioned above.

We do not conduct risk evaluation on the formation of nitrosamines in the manufacturing process and during storage of the product. Accordingly, no testing with respect to nitrosamines is performed for this product.

We provide this information to the best of our knowledge.

Merck KGaA
Corporation with General Partners
Frankfurter Str. 250
64293 Darmstadt, Germany

Sincerely,

Gowthami KR
Quality Services

This document has been produced electronically and is valid without a signature.

Date: November 28, 2025

Merck KGaA
Corporation with General Partners
Frankfurter Str. 250
64293 Darmstadt, Germany

7. Quality Attributes

The M-Clarity™ matrix includes six quality segments from MQ100 to MQ600 defining the quality attributes and the notifiable changes in each segment.

The product in this qualification package meet the discriminating quality attributes assigned to the MQ400 Quality Segment.

Additonal Information on M-Clarity™

8. Change Notification

To ensure that we provide the most-up-to-date product information, we have a best-in-class Change Notification Program based on a compliant Change Control process and on our M-Clarity™ Program. We inform customers about important changes that could impact their R&D or process development programs.

The easiest and quickest method to obtain Change Notifications is to request a product specific Change Notification Commitment (CNC). By building our Change Notification program on this opt-in process, our customers should not receive non-relevant letters that could trigger unnecessary, resource-intensive investigations. You can enroll all products deemed critical, despite order history.

Additional Information on Change Notification

9. Quality Agreements

Quality Assurance Agreements (QAA) are legally binding contracts negotiated between our company and our customers.

QAAs address and define various topics related to the quality standards/systems/ services applicable to the covered products: ISO 9001 Certificate standards/certifications, complaint handling, audits, recalls, documentation support, level of verification/validation, and notification of changes. Due to the extended requirements and support levels that need to be in place, QAAs are available for products with MQ segments of MQ300 and above.

The term of a QAA is five years. An expiry notice will be sent in advance, to allow time to prepare for a renewal.

When the QAA is finalized and fully signed, the information is secured in our dedicated IT system and Change Notifications will be received for the products covered by the QAA in accordance with the M-Clarity™ program.

If you are interested in a QAA or a CNC, please contact your **local representative.**

10. Site Audits

Site audits provide a reliable assessment of our manufacturing capabilities and facilities. Please contact your **local representative** to request a site-specific audit when certain criteria are met

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Technical Assistance

For more information, please visit **SigmaAldrich.com** for up-to-date worldwide contact information