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MICRONISED LITHIUM BENZOATE

(D100 < 20 µm | Optional Ultra-Fine Grade D100 < 10 µm)

1. Product Introduction & Context

Micronised Lithium Benzoate is the lithium salt of benzoic acid, supplied in a finely controlled micronised powder form for use in **polymer, compound, and specialty material applications**. In industrial polymer systems, lithium benzoate is primarily valued for its ability to influence **crystallisation behaviour, thermal stability, and optical performance** when used at low addition levels.

The micronised form is specifically developed to ensure **uniform dispersion, rapid functional response, and consistent performance**, particularly in applications where coarse or standard powder grades exhibit delayed action or dispersion-related variability.

2. Chemical & Physical Nature (High-Level Overview)

Lithium Benzoate is an **organic lithium carboxylate salt** with high thermal stability relative to typical polymer processing temperatures. It remains chemically stable under melt-processing conditions commonly encountered in polyolefins, engineering plastics, and compound systems.

The material is **water soluble** and exhibits limited solubility in most organic solvents. In polymer matrices, it functions as a solid additive rather than a migrating component, provided appropriate dispersion is achieved.

Its inorganic–organic hybrid nature allows it to interact effectively with polymer crystallisation and thermal processes without acting as a plasticiser or lubricant.

3. Role of Micronisation (Particle Size Relevance)

Micronisation is **critical** to the effective performance of lithium benzoate in polymer systems.

Typical offered grades include:

- **D100 < 20 µm** (standard micronised grade)
- **D100 < 10 µm** (ultra-fine grade, application-specific)

Reduced particle size delivers:

- Faster and more uniform dispersion in polymer melts
- More consistent nucleation or stabilisation response
- Lower risk of agglomeration or localised over-concentration
- Improved optical uniformity in transparent or clarified systems

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Compared to coarse or standard powder grades, micronised lithium benzoate demonstrates **more predictable performance at lower loadings**, particularly in high-clarity or precision applications.

4. Functional Mechanism (How the Product Works)

In polymer systems, micronised lithium benzoate functions primarily through **crystallisation control and thermal interaction mechanisms**. It acts as an efficient **heterogeneous nucleation site**, promoting controlled crystallisation in semi-crystalline polymers.

In selected formulations, it also contributes to **thermal stabilisation synergy**, particularly when used alongside primary stabiliser systems or acid scavengers. The fine particle size ensures rapid availability of active sites during melt processing, improving response time and consistency.

The product's mechanism is **physical–chemical**, not reactive, and does not rely on decomposition or volatilisation to deliver performance.

5. Key Application Areas

Polyolefins & Engineering Plastics

Used as a high efficiency nucleating additive in polymers such as **PP, HDPE, PET, and PBT**, where improved crystallisation behaviour and optical properties are required.

PVC & Rubber Systems

Functions as a **thermal stabilisation synergist and acid scavenger**, supporting primary stabiliser packages and improving processing consistency.

Masterbatch & Compound Formulations

Applied in **optical clarification and performance-enhancement masterbatches**, where fine dispersion and low addition levels are critical.

Specialty Polymers

Used in technical resin systems to promote **controlled crystallinity and dimensional stability**, particularly where transparency or surface quality is important.

Coatings & Adhesives (Non-Aqueous)

Acts as a modifier in selected **solvent-based systems**, where controlled particle size supports uniform distribution.

6. Performance Benefits (Qualitative)

- Enhanced dispersion uniformity in polymer matrices
- Faster functional response during melt processing
- Improved consistency of crystallisation behaviour

- Support for optical clarity and surface quality
- Reduced variability compared to coarse grades
- Effective performance at low addition levels

7. Compatibility & Processing Considerations

Micronised lithium benzoate is compatible with a wide range of **polyolefin, engineering plastic, and compound systems**. It is suitable for typical melt-processing temperatures used in extrusion, injection moulding, and compounding operations.

For optimal performance:

- Uniform dry blending or masterbatch incorporation is recommended
- Moisture control should be maintained during storage and handling
- Ultra-fine grades (D100 < 10 μm) may require enhanced dust-control practices

8. Regulatory & Compliance Position (High-Level)

This product is intended for **industrial use** in polymer, compound, coating, and specialty material applications. It is **not currently listed for direct food-contact or pharmaceutical use** unless separately certified.

Regulatory acceptance may vary by region and application. Users are responsible for verifying suitability and compliance with applicable local regulations prior to commercial use.

9. Limitations & Non-Recommended Uses

- Not intended for pharmaceutical or medical applications
- Not recommended for direct food-contact applications without specific certification
- Not designed for aqueous systems where solubility may affect performance
- Performance may vary depending on formulation and processing conditions

10. Reference to Technical Specifications

Detailed physical, chemical, and analytical properties — including purity, particle size distribution, impurity limits, and test methods — are provided in the **Technical Data Sheet for Micronised Lithium Benzoate (LIBZ Micronized)**.

This article intentionally avoids duplicating specification tables.

11. Handling, Storage & Safety (Article-Level)

The product should be stored in a **dry, cool environment**, protected from moisture. Standard dust-handling precautions are recommended during processing.

For comprehensive safety, handling, and regulatory information, users should refer to the **Material Safety Data Sheet (MSDS)**.

12. Disclaimer & User Responsibility

This article is provided for **technical and informational purposes only**. Product performance depends on formulation design, processing conditions, and end-use requirements. Users must conduct their own evaluations and testing to determine suitability for specific applications.

Polymer Add (Thailand) Co., Ltd. accepts no liability for misuse or unintended application of this product.