

Polymer Add (Thailand) Co.,Ltd.

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PENTAERYTHRITOL TETRABENZOATE (PETB) – MICRONISED SOLID & HIGH-MELTING PLASTICIZER / PERMANENT INTERNAL MODIFIER

Product Overview

Pentaerythritol Tetrabenzoate (PETB) is a high-melting, tetra-functional benzoate ester designed for use as a solid plasticizer and permanent internal modifier in demanding polymer systems. In micronised form, PETB enables uniform dispersion, controlled melt incorporation, and long-term performance stability across a wide range of thermoplastic and composite applications.

Unlike conventional liquid plasticizers, PETB functions as a low-migration, low-volatility solid plasticizer, remaining structurally integrated within the polymer matrix during processing and throughout service life.

Functional Role in Polymer Formulations

PETB performs multiple high-value functions within polymer systems:

- Solid, high-melting plasticizer
- Permanent internal modifier
- Dimensional-stability enhancer
- Low-migration flexibility modifier
- Thermal-resistant processing aid

Its tetra-benzoate molecular structure provides **balanced rigidity and flexibility**, allowing formulators to fine-tune mechanical and thermal properties without relying on volatile liquid additives.

Primary Application Areas

| Application Area | Functional Benefit |
|--|---|
| Engineering Thermoplastics | Permanent plasticization with thermal stability |
| Polymer–Paper & Polymer–Fiber Composites | Improved interfacial stability and structural integrity |
| High-Temperature Compounds | Retained performance under elevated processing temperatures |
| Filled & Mineral-Loaded Systems | Stress distribution and reduced brittleness |
| Specialty Polymer Blends | Controlled flexibility with low additive migration |

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Advantages of Micronised PETB

- Enables uniform dispersion in dry blends and masterbatches
- Improves processing consistency in extrusion and compounding
- Reduces risk of localized agglomeration
- Supports lower dosage efficiency compared to coarse solids
- Compatible with precision dosing and automated feeding systems

Performance Characteristics

- High melting / softening range suitable for elevated processing temperatures
- Low volatility and negligible plasticizer bleed
- Excellent permanence within polymer matrices
- Minimal impact on long-term mechanical properties
- Supports stable performance over extended service life

Application Scope / Usage Note

PETB is intended for use as a **solid plasticizer and permanent internal modifier** in thermoplastic and composite systems. Optimal dosage and processing conditions should be determined through formulation trials.

Packaging & Supply

- Supplied as **micronised free-flowing powder**
- Standard packaging: 25 kg bags (custom packaging on request)