

## DIPHENYL ISOPHTHALATE (DPI)

### HIGH-MELTING SOLID PLASTICIZER / FUNCTIONAL POLYMER MODIFIER

**Diphenyl Isophthalate (DPI)** is an aromatic ester-based solid plasticizer and functional modifier designed for polymer systems requiring high thermal resistance, low migration, and permanent plasticization.

With its high melting point and rigid aromatic structure, DPI is widely used in high-temperature polymer compounds, engineering plastics, and specialty PVC formulations where conventional liquid plasticizers are unsuitable.

Supplied in micronised solid form, DPI enables uniform dispersion, stable processing behaviour, and predictable long-term performance across demanding polymer applications.

#### Primary Uses & Commercial Applications

##### Flexible & Semi-Rigid PVC Compounds

DPI functions as a solid plasticizer or co-plasticizer, contributing to controlled flexibility, improved heat resistance, and dimensional stability in PVC formulations operating at elevated temperatures.

##### Engineering Thermoplastics

Used as an internal modifier, DPI supports mechanical integrity and thermal performance in engineering polymers where low volatility and permanence are essential.

##### Styrenic, ABS & Flame-Retardant Systems

In filled or flame-retardant compounds, DPI acts as a stress-distribution and compatibility modifier, helping maintain balance between stiffness and toughness.

##### High-Temperature & Electrical Polymer Applications

Its low migration and high melting point make DPI suitable for polymer components exposed to continuous thermal stress, including electrical and insulation-related applications.

#### Functional Role in Polymer Formulations

- High-melting solid aromatic plasticizer
- Permanent plasticization with low volatility
- Partial or full replacement for liquid plasticizers

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- Internal modifier improving thermal and mechanical stability
- Suitable for dry-blend and masterbatch systems

## Why Micronised DPI

Micronisation improves dispersion efficiency, dosage precision, and formulation consistency. This allows DPI to perform effectively at lower loadings while maintaining long-term functional stability in both melt-processed and compounded polymer systems.

## Application Scope / Usage Note

Performance depends on formulation design, processing conditions, and compatibility with other additives. Application-specific validation is recommended.