Product Data Sheet

Trinonyl Phenyl Phosphite (TNPP)

Description

Trinonyl phenyl phosphite (TNPP) is a **liquid aryl-alkyl phosphite** widely used as a **secondary antioxidant** and **processing stabilizer** in polymers. It is a clear to pale yellow liquid with good solubility in organic solvents. TNPP improves **thermal stability, color retention, and mechanical properties** of polymers during processing and in end-use applications.

Typical Properties

Parameter	Specification
Chemical Formula	C33H51O3P (approx.)
Molecular Weight	514 – 518 g/mol
Appearance	Clear to pale yellow liquid
Specific gravity at 25 °C	0.985 – 0.996
Acidic Value, mg KOH / gm	0.5 Max
Refractive Index at 25 °C	1.526 – 1.530
Phosphorous Content %	3.9 – 4.3%
CAS Number	26523-78-4
EC Number	247-759-6

Applications

- **Polymer Stabilizer:** Secondary antioxidant in PVC, polyethylene, polypropylene, ABS, and styrenics.
- **PVC Industry:** Improves heat stability, color retention, and mechanical properties in rigid and flexible PVC (pipes, cables, films, and profiles).
- **Polyolefins:** Provides melt flow stability, reducing gel formation and degradation during processing.
- **Coatings, Adhesives & Sealants:** Enhances oxidative stability, color retention, and gloss in cured resins.
- **Lubricants:** Serves as an additive to prevent oxidation, sludge formation, and varnish in specialty lubricants.
- **Synergistic Use:** Often used with hindered phenolic antioxidants and metal stabilizers for enhanced high-temperature stability.

Safety & Handling

- TNPP may slowly hydrolyze to release phenol**,** which is toxic.
- Handle with gloves, goggles, and protective clothing**.**
- Store in tightly sealed containers**,** in a dry, well-ventilated area**,** away from heat and moisture.
- Refer to the Safety Data Sheet (SDS) for detailed guidance.

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