

K.NOX-168

Organophosphite Processing Stabilizer for Thermoplastic and Coating Resins

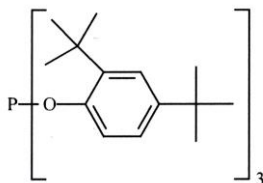
CHEMICAL NAME Tris-(2,4-ditert-butylphenyl)phosphite

CAS NUMBER 31570-04-4

EINECS NUMBER 250-709-6

MOLECULAR FORMULA C₄₂H₆₃O₃P

STRUCTURE



MOLECULAR WEIGHT 647 Dalton

CHARACTERIZATION

K.NOX-168, a triarylphosphite, is a Peroxide Decomposer which acts into the polymers during their processing (compounding and fabrication) by preserving their original colour and MFI (i.e.K.NOX-168 counteracts chain scission or crosslinking problems).

K.NOX-168 owns low volatility, low water absorption and good resistance to hydrolysis. K.NOX-168 is largely used in thermoplastic resins [olefins: PP, HDPE, LLDPE, EVA etc; PBT, PC, PA, Styrene omo- and co-polymers, HM Adhesives, TPE (SBS, SEBS)].

It is largely used as well in coating resins (alkyd and polyester), to avoid over-bake Yellowing and change of physical properties during curing.

Owing to the trivalent phosphorous present in its molecular structure, K.NOX-168 acts too as a mild metal ions deactivator. The maximum efficiency of K.NOX-168 in thermoplastics is however reached when it is combined with phenolic antioxidants and thioester, which assure further long-term stability to these resins during their service life.

The above applies to coating resins too. However to avoid possible adverse discoloration (gas-fading) shown by the traditional phenolic AOX in presence of high levels of NOx gases during coating baking in gas fired ovens, the combination of K.NOX-168 with HALS stabilizers.

**CHEMICAL-PHYSICAL
PROPERTIES**

Appearance	White odourless powder
Purity	≥ 99%
Melting range (capillary)	183 – 186 °C
Volatiles (2h @ 105°C)	≤ 0,3%
Acid value	< 0,3% mgKOH/g
Hydrolysis time	20 hours minimum
Transmittance % (solution of 10 g /100 ml toluene, 1 cm cell)	
@ 425 nm	≥ 97%
@ 500 nm	≥ 98%
Specific gravity @ 20°C	1.03 g/cm ³
Flash point	> 150 °C
Decomposition temperature	> 350°C
Volatility, % weight loss (TGA-analysis, heating rate 20°C/min in air)	
	5% at 256°C
	10% at 271°C
Solubility @ 20°C (g/100 ml solvent)	
Cyclohexane	10
Acetone	1
Toluene	30
Ethyl acetate	4
Hexane	11
Methanol	< 0.01
Ethanol	0.1
Water	0.01 (degradation)

PACKAGING

K.NOX-168 is supplied in 25 kg net special plastic bag to prevent hydrolysis upon storage.

TOXICOLOGY

Acute oral toxicity (LD50 rat)	> 2000 mg/kg
Acute Skin toxicity (LD50 rat)	> 2000 mg/kg

**FOOD CLEARANCE
STATUS**

K.NOX-168 is approved by the EC for use in all polymers coming in contact with food without limitation (see Italian G.U. No. 125/31.05.2003, NoPM/Ref.74240).
For other countries information are available upon request.

**STORAGE
HANDLING**

K.NOX-168 is sensitive to moisture. Keep containers tightly closed.
Store in a dry and ventilated cool place away from incompatible materials. Maximum recommended storage time under suitable condition (dry, cool and closed containers): 24 months.

ADDITION LEVELS

Taking into account the type of the thermoplastic polymer, the type and quantity of pigments, fillers and expected service life, the suggested use of K.NOX-168 is 0,10 – 0,30% in combination with phenolic and thioester antioxidant at the same concentration for higher LT stability.

For coating resins processing and service stabilization K.NOX-168 should be used at 0,20 – 0,80 % alone or, for a stronger protection in combination (quantified by lab trials) with K.SORB 622 or K.NOX 1790.

The information submitted in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application, this data does not relieve processors from the responsibility of carrying out their own tests and experiments. Neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom K Chimica supply their own products to ensure that any proprietary rights or patents and existing laws and legislation are observed. The product has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.