Antioxidant 9228

PRODUCTDATASHEET

Introduction

Antioxidant 9228 belongs to the family of spiro phosphite antioxidants which are known for their high phosphorous content and notable efficiency compared to other phosphite-based antioxidant families. Revonox® 608, however, does not suffer from the intrinsic weakness of low hydrolytic stability caused by the spiro structure. At ambient temperature, 9228 maintains its free flowing properties even after being exposed to a highly humid environment (> 80%) for more than 30 days.

Furthermore, the large molecular weight and unique structure of 9228 makes the molecule very heat stable and it holds the record for thermal stability amongst the commercial phosphite antioxidants. As can be seen from Figure 1, 10% of 9228 decomposes at a temperature well over 300°C which is 80°C higher than that of antioxidant 168 .

Like the other phosphite antioxidants, antioxidant 9228 acts as a secondary antioxidant by quenching the hydroperoxide during the auto-oxidation cycle and retards the degradation associated with color development in particular. When used in engineering plastics such as polyester and nylon, it demonstrates excellent color protection during plastics compounding to an extent unmatched by other phosphite antioxidants even at excess dosage, see Figures 3 and 4.

This outstanding efficiency cannot be explained simply by high thermal stability, low molten color (see Figure 2) and high phosphorous content. A not yet clearly understood mechanism transforming the dark color intermediates associated with the oxidized form of the hindered phenolic-based primary antioxidants back to a low color form could also be a contributor to the efficiency.

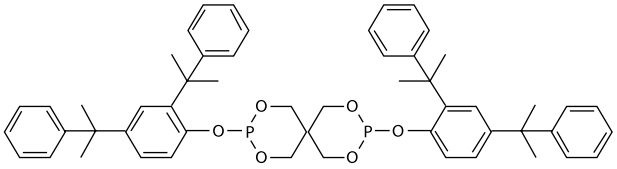
antioxidant 9228 also adds value to the non-engineering plastics such as PP, PVC, PS, POM, ABS, PMMA, etc, by stabilizing their physical and mechanical properties to a very high degree. However, the high melting point (see Figure 5) of Revonox® 608 limits its use with PE, PU and similar polymers, where the processing temperature is low.

Packaging

15 Kg net / Carton box

Information

Structure



Chemical name

Bis (2,4-dicumylphenyl) pentaerythritol diphosphite

CAS No.	:	154862-43-8
Molecular weight	:	852

Physical Data

Odor	:	Odorless
Bulk density	:	0.75 g/mL
pH	:	7.66
TGA (10% loss)	:	340 °C
Phosphorus content	:	7.3%

Solubility *(g in 100ml solvent @ 20 °C)*

Acetone	:	< 0.10
Ethyl acetate	:	< 0.10
Hexane	:	< 0.10
Dichloromethane	:	0.80
Toluene	:	0.13
Cyclohexane	:	< 0.10
Mineral oil	:	< 0.01
Acetonitrile	:	< 0.10
Methanol	:	< 0.10
Isopropanol	:	< 0.10
Water	:	< 0.10

Specification

Appearance	:	White free flowing powder
2,4-DCP (%)	:	1 % max.
Acid value	:	3 mgKOH/g max.
Tributylamine	:	2,000 ppm max.
Color, WI	:	82.0 min.
Volatile (%)	:	0.5% max.
Melting point	:	225-246 °C