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and
more effective
Chemistry

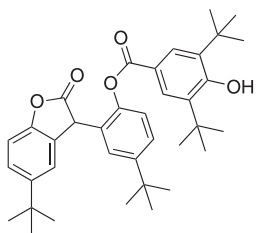


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Revonox[®] 501
The Best Melt Flow Index Protector

Revonox® 501



CAS No. : 1261240-30-5
FCN No. : 1254 and 1433

Introduction

Revonox® 501 is a benzo-furanone which optimally combines carbon-centered radical scavenger activity and primary antioxidant functions in a single molecule. As a multi-functional antioxidant, Revonox® 501 can be applied as a highly efficient thermal processing stabilizer to provide outstanding performance in a variety of polymers such as PP, PE, PBT, styrenics, olefin-copolymers, and adhesives. It is especially suitable for use in engineering plastics due to its high thermal stability, which is shown in the TGA trace in Figure 1.

In Table 1 and Figure 2, Revonox® 501 shows a significant synergistic effect when formulated with hindered phenolic and phosphate-based antioxidants. Its superior radical scavenging activity over conventional antioxidant systems is particularly pronounced when tested in anti-scorching experiment.

In a simulated spandex dry spinning process, Figure 3, an AO system composite with Revonox® 501 demonstrates a high radical scavenging efficiency by displaying a superior yellowing control with a lower total dosage.

Strengths of Revonox® 501

- 1. Melt Flow Index protection
- 2. High radical scavenging activity
- 3. FDA approved

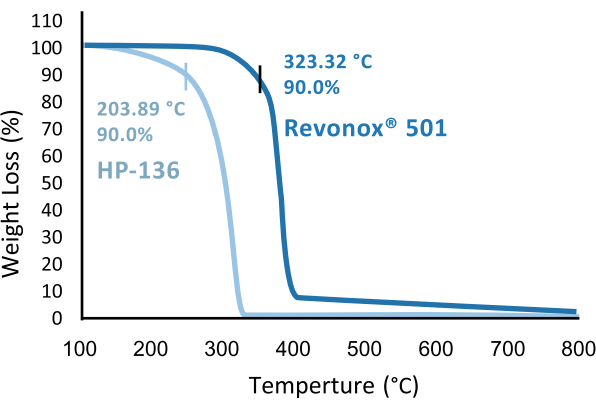
Physical Data

Appearance : White crystalline powder
Melting Point : 190 - 197 °C
Specific gravity : 1.086 @ 20 °C
Bulk density : 0.56 g/cm³

Solubility (g in 100ml solvent @ 25 °C)

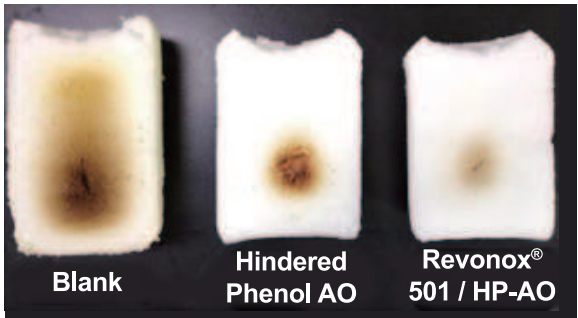
Toluene : 25
Acetone : 35
Ethyl Acetate : 25
Dichloromethane : >50
Water : <0.2

Figure 1. Thermogravimetric Analysis (TGA)



Conditions:
1. Under Air
2. Heat from 110 °C to 850 °C at 20 °C/min

Figure 2. Anti-Scorching of Polyurethane Foam



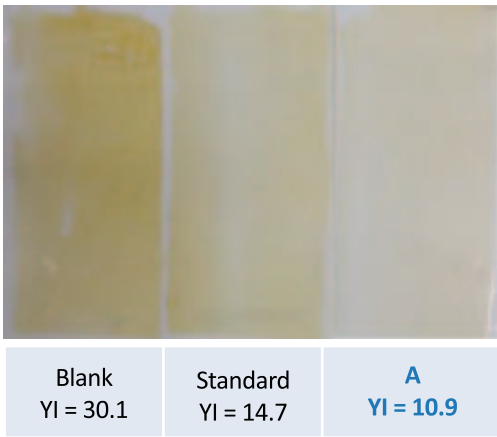
Conditions:
1. Microwave condition: 400W, 5mins
2. Antioxidant dosage: 1%

Table 1. Synergistic Effect of Revonox® 501

Number	1	2	3	4
PP	100	100	100	100
Deox 10		0.025	0.025	
Deox 604		0.065	0.065	
Revonox® 501			0.01	0.01
OIT* , mins	4.07	5.90	9.93	4.57

*Oxidation induction time
Conditions:
Temperature: 220 °C

Figure 3. Color Retention of Spandex



- Spandex simulation conditions: 300 °C, 4 mins
- Standard: 1.4%, AO-245/ Winstay L
- A: 0.8%, AO-245/ Revonox® 501= 9/1

Recommended Applications

Revonox® 501 provides excellent synergistic effects when formulated with hindered phenolic and phosphate-based antioxidants. A dosage of 100 ppm ensures a stable MFI performance.

- 1. Engineering plastics
- 2. TPU / PU foam
- 3. Food contact packaging