

Greener, safer,
and
more effective
Chemistry



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Revonox[®] 608

A highly effective & thermally stable antioxidant

Revonox® 608 is a spiro phosphite antioxidant, which is a family of compounds known for their high phosphorous content and superb antioxidant efficiency compared with other phosphite-based antioxidants.

Revonox® 608 is the best material in terms of its hydrolytic and thermal stabilities among spiro phosphite antioxidants. At ambient temperature, Revonox® 608 maintains its free-flowing properties even after being exposed to a highly-humid environment (> 80%) for more than 30 days. This is superior performance than the general spiro antioxidant Deox 604 (CAS no. 26741-53-7), which deliquesced only three days under the same conditions (see Figure 1).

Due to its large molecular weight, the 10% weight loss temperature of Revonox® 608 exceeds 340 °C as measured by TGA (Figure 1), which is 100 °C higher than the commodity phosphite antioxidant, Deox 68 (CAS no. 31570-04-4). Unlike other phosphite antioxidants, Revonox® 608 will not discolor when molten, as shown in Figure 2. Therefore, Revonox® 608 is highly recommended for use with engineering plastics such as PC, PET, PBT, and PEEK which are generally processed at elevated temperatures.

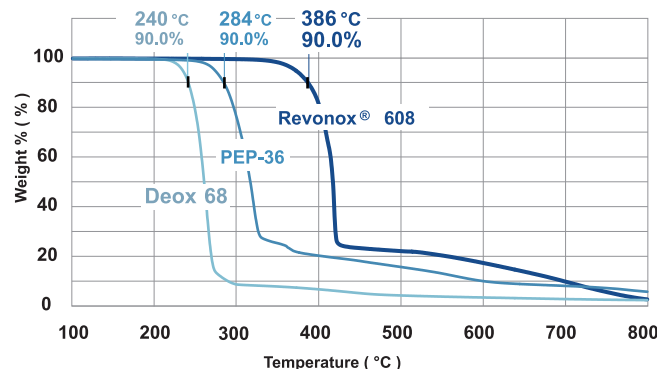
In the PET multi-extrusion test conducted at 280 °C (Figure 3), when used in combination with the hindered phenolic antioxidant, Deox 10, Revonox® 608 demonstrates a high antioxidation efficiency with an improved color protection compared with Deox 68.

Revonox® 608 has a sister version available called Revonox® 608T which has a 1% maximum loading of amines as hydrolysis stabilizers and is recommended for use with PA, PP, PE, and PVC.

Recommended Applications

1. PP, ABS, PS, POM
2. PBT, PET, PC, PA, PMMA, etc.
3. Plastics of processing temperature over 280 °C

Figure 1. Thermogravimetric Analysis (TGA)



Conditions:
 • Heat from 110 °C to 850 °C at 20 °C / min
 • Under air

Figure 2. Molten color of Revonox® 608 (@ 280 °C / 2 hours)

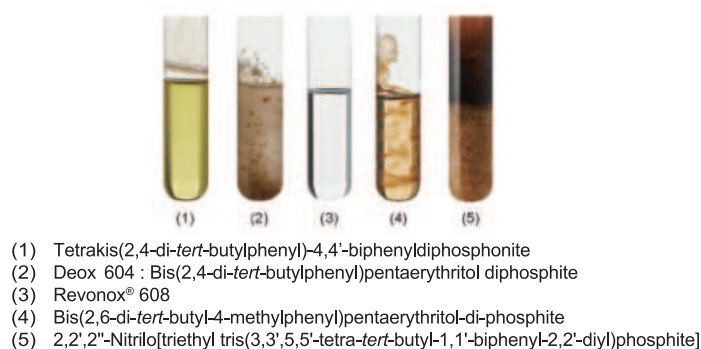
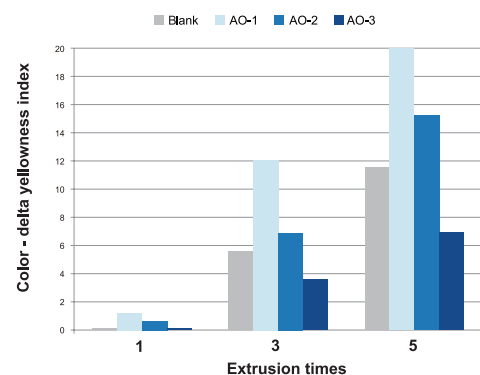
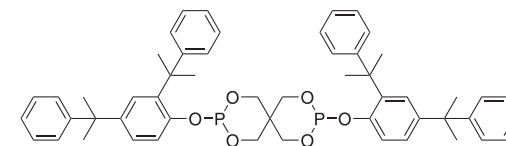


Figure 3. Color stability of PET -Multi extrusions at 280 °C



- AO-1: 500 ppm Deox 10;
- AO-2: 500 ppm Deox 10 + 1,500 ppm Deox 68;
- AO-3: 500 ppm Deox 10 + 1,500 ppm Revonox® 608;
- Deox 10: Pentaerythritol tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)
- Deox 68: Tris(2,4-di-tert-butylphenyl)phosphite

Revonox® 608



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%

Specification

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

REACH

Leader registrant
 10-100 t/a

Strengths of Revonox® 608

1. Safer and sustainable production process
2. Free-flowing powder
3. High thermal stability
4. Hydrolysis resistance
5. High efficiency
6. High color stability