

Introduction

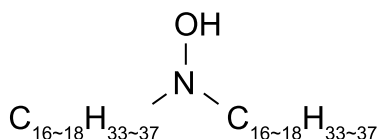
Revonox[®] 420 is a hydroxylamine based, phenol-free antioxidant. It is a very powerful melt processing stabilizer with excellent color maintenance, high compatibility, low volatility and better storage stability at elevated temperature. Its outstanding performance over conventional hindered phenolic antioxidant systems is particularly pronounced in the inhibition of gas fading discoloration. Its performance can be further optimized when used in combination with phosphite type antioxidants. Revonox[®] 420 is especially suitable for the applications in polypropylene fiber, automotive TPO as well as polyolefins where low color and low gas fading discoloration are important.

Application

Revonox[®] 420 is highly recommended for the use in conjunction with phosphite stabilizers such as DEOX 68 and DEOX 604. This combination can be applied as a high efficient melt processing stabilizer system in polypropylene fiber applications, automotive TPO. The use levels of Revonox[®] 420 range between 0.05% and 0.15% are recommended for protection. It depends on the substrate and performance requirements of the final application.

Chemical Information

Structure



Chemical name

Oxidized bis(hydrogenated tallow alkyl) amines

CAS No. 143925-92-2

Molecular formula C₃₆H₇₅NO

Molecular weight 538

Physical Data

Odor : Odorless
Melting point : 96~98 °C
Specific gravity : 0.95 (25 °C)
Vapor pressure : 1E-10 mmHg (25 °C)

Specification

Appearance : White to off-white powder
Melting point : 90 °C min.
Volatile : 0.5% max.
Ash content : 0.1% max.
Trace element content :
Na : 100 ppm max.
Ca : 50 ppm max.
Cr : 5 ppm max.
Fe : 10 ppm max.
Zn : 5 ppm max.
Al : 50 ppm max.
Cu : 1 ppm max.
Ni : 10 ppm max.

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

Heptane : < 0.1
Ethyl acetate : < 0.1
MEK : < 0.1
Toluene : < 0.1
Water : Insoluble

Performance Data

PP^a Polymer Melt Flow Stability

Extrusion pass ^b	1	2	3	4	5	ΔMFR ^c
Control (MFI = 5.5)	9.78	16.60	27.20	42.80	---	33.02
Revonox 420	6.66	8.68	11.39	16.06	19.45	12.79
Revonox 420/DEOX 68 ^d	6.43	7.90	10.47	14.84	18.22	11.79

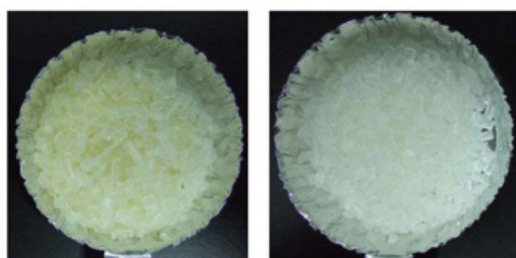
a: Polymer: PP (homo, MFI = 5.5)

b: Processing condition: Multiple extrusion, twin screw extruder (φ = 35 mm, L/D = 36)

c: Melt flow rate is measured by weight every 10 minutes at 230 °C and 2.16kg pressure.

d: 0.1 phr Revonox 420 and 0.1 phr DEOX 68

PP^a Polymer Color Stability



0.1 phr Phenolic AO
+ 0.1 phr DEOX 68

0.1 phr Revonox 420
+ 0.1 phr DEOX 68

a: Polymer: PP (homo, MFI = 5.5)

b: Test condition: Oven ageing at 150 °C for 6 days in recirculating air oven

Packaging

20 Kg net / Carton box