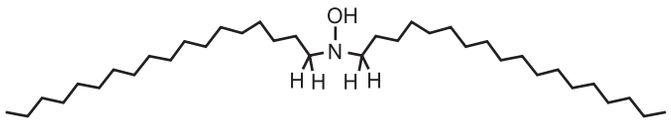
Greener, safer,
and
more effective
Chemistry

chitec
www.chitec.com
16F., No. 51, Sec. 2, Keelung Rd.,
Taipei City 110, Taiwan
sales@chitec.com
+886-2-2700-6678

Revonox® 420V

The Phenol-free Antioxidant derived from palm oil

Revonox® 420V



CAS No. : 1374859-51-4
FCN No. : 1663

Introduction

Revonox® 420V is an antioxidant derived from palm oil using Chitec' s proprietary process that eases customers' concerns from its tallow-based predecessor. As a phenol-free primary antioxidant, Revonox® 420V is resistant to gas-fading, while other hindered phenolic antioxidants are not (Figure 1). It also has an excellent initial color and an anti-yellowing property, as shown in Figure 2.

Revonox® 420V demonstrates excellent synergistic effects which contribute to excellent initial color and physical property retention when formulated with phosphite antioxidants or HALS, as shown in Table 1 and 2. Its outstanding performance compared with conventional hindered phenolic antioxidant systems is especially suitable for applications with polypropylene (PP), polyethylene (PE) fibers/films and in automotive TPO, as well as polyolefins.

Recommended Applications

Revonox® 420V is highly recommended for use with phosphite antioxidants or hindered amine light stabilizers such as Deox 68 and Chiguard® 228. These combinations can be used in the following applications to enhance thermal stability.

· PE, PP
· Polyolefin fibers / films
· Automotive TPO
· Food contact packaging

Physical Data

Appearance	:	White free-flowing powder
Odor	:	Odorless
Bulk density	:	0.55 g/ml
Ash content	:	0.1% max
Melting point	:	90 - 96 °C

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

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

Figure 1. Gas-fading Resistance of Revonox® 420V

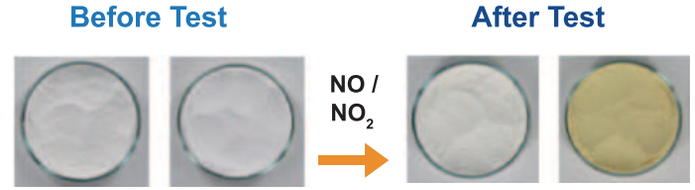


Figure 2. Initial Color Control of Revonox® 420V

1000 ppm
Revonox® 420V
/ Deox 10 / Deox 68
= 15 : 42.5 : 42.5

1500 ppm
Deox 10 / Deox 68
= 1 : 2

• Substrate: BOPP Film

Table 1. Synergistic Effect of Revonox® 420V

	Blank	AO-1	AO-2
Deox 10		300 [a]	
Deox 68		600	
Revonox® 420V			300
Chiguard® 944		300	300
YI after extrusion			
1st pass	-2.97	-0.21	-2.47
3rd pass	-0.91 [b]	2.14	-0.74
5th pass	2.24 [b]	5.38	**0.42**

Conditions:
1. Plastic: virgin pp
2. Extrusion temperature: 220 °C
3. Calcium stearate: 200ppm, DHT-4V: 200ppm
a: unit= ppm
b: MI failed

Table 2. Synergistic Effect with Phosphite AO

	Standard	AO-1	AO-2
Deox 10	333 [a]		
Deox 68	666	666	
Revonox® 420V		333	333
Revonox® 608			666
YI after extrusion			
1st pass	1.14	-0.14	-1.41
3rd pass	8.56	3.2	0.08
5th pass	9.76	4.16	**0.48**

Conditions:
1. Plastic: virgin pp
2. Extrusion temperature: 220 °C
3. DHT-4V: 200ppm
a: unit= ppm

Strengths of Revonox® 420V

1. Phenol free
2. Resistant to gas-fading
3. Low color contribution
4. Excellent melt-flow strength retention
5. FDA approved