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VANDERBILT Chemicals Technical Data

No. 1230
Rubber and Plastics Department

VANOX® 898 Antioxidant

Polypropylene Processing Stabilizer

• Reduces discoloration from talc fillers • Improves long term heat aging • Improves melt flow stability

VANOX 898 is a very cost-effective high performance process stabilizer for mineral-filled polypropylene. **VANOX 898** imparts many benefits, at a use level of a fraction of one percent, in typical talc-filled polypropylene formulations. Its primary function is to prevent the discoloration of compounds containing appearance grade talcs, which impart color changes when processed at high temperatures. **VANOX 898** also improves long-term heat aging and melt flow stability.

The inclusion of 0.1% **VANOX 898** in a talc-filled polypropylene compound exposed to elevated temperatures reduces overall color development (Figure 1, Table 1).

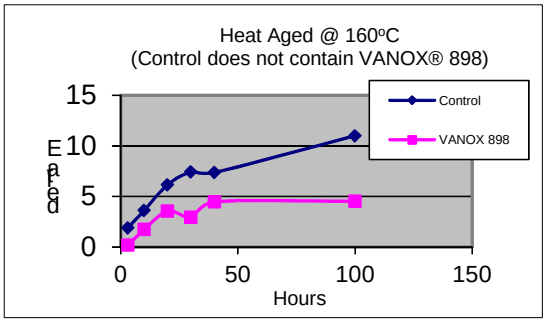

Figure 1: Color Development in Heat Aged Talc-filled Polypropylene.

The inclusion of 0.1% **VANOX 898** significantly reduces red color (“pinking”) development during the heat aging of talc-filled polypropylene (Figure 2, Table 1).

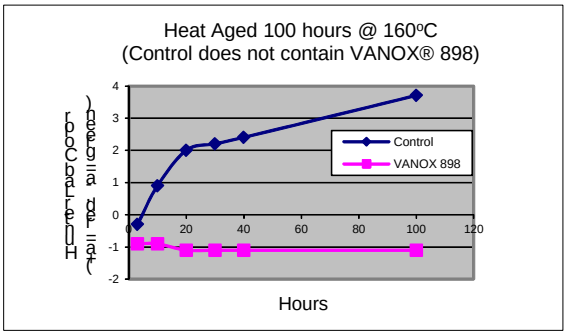

Figure 2: Red Color Development in Heat Aged Talc-filled Polypropylene.

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Table 1

Ingredients	Control	VANOX 898 Formula
Profax 6501 Polypropylene	60.0	60.0
Appearance Grade Talc	40.0	40.0
VANOX® 1030A Antioxidant	0.3	0.3
Epoxy Resin	0.3	0.3
VANOX 898	---	0.1

VANOX® 898 Antioxidant in talc-filled polypropylene improves long-term heat aging, nearly tripling oven stability (Figure 3, Table 2).

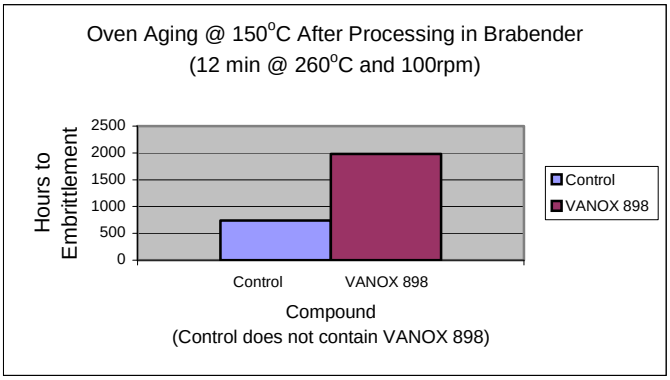

Figure 3: Oven Aged Stability of Brabender Processed Talc-filled Polypropylene.

Lastly, 0.1% of **VANOX 898** in talc-filled polypropylene stabilizes melt flow by reducing polypropylene chain scission (Figure 4, Table 2).

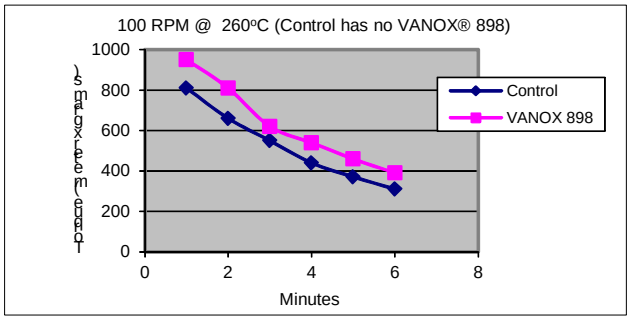

Figure 4: Brabender Processing Stability of Talc-filled Polypropylene.

Table 2

Ingredients	Control	VANOX 898 Formula
Profax 6501 Polypropylene	60.0	60.0
Luzenac® 8230 Talc (other talc products can be used)	40.0	40.0
VANOX® 1030A Antioxidant	0.8	0.8
Epoxy Resin	0.5	0.5
VANOX 898	---	0.1

Conclusion:

The addition of 0.1% of **VANOX® 898** Antioxidant to talc-filled polypropylene compounds cost effectively offers measurable processing improvements. Specifically, **VANOX 898** reduces color development, "pinking", improves thermal stability and melt flow stability.

VANOX 898 complies with FDA Title 21 CFR section 178.2010. The maximum use level is 0.08%, based on the weight of polypropylene polymers complying with section 177.1520 (c), paragraph 1.1.

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