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Technical Data

VANOX[®] 898 Antioxidant Polypropylene Processing Stabilizer

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TECHNICAL DATA

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 talc-filled polypropylene compounds exposed to elevated temperatures reduces overall color development (Figure 1, Table 1).

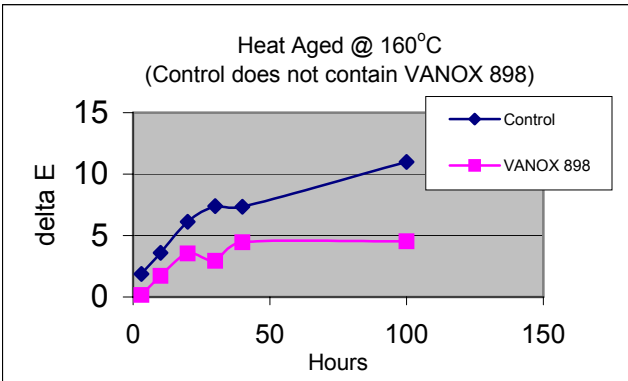


Figure 1: Color Development in Heat Aged Talc-filled Polypropylene.

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).

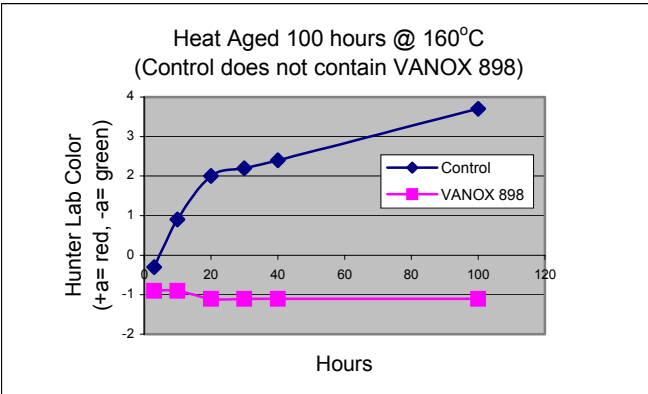


Figure 2. Red Color Development in Heat Aged Talc-filled Polypropylene

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

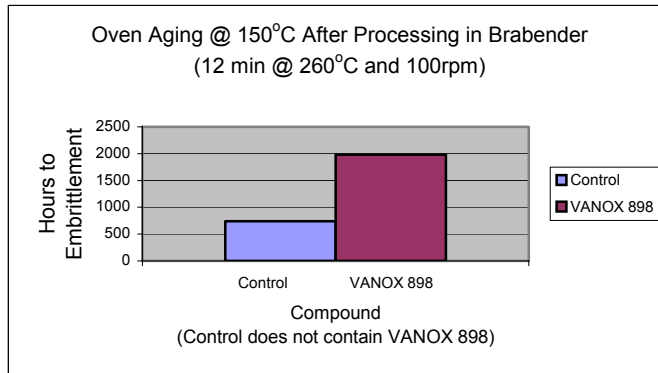


Figure 3: Oven Aged Stability of Brabender Processed Talc-filled Polypropylene.

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

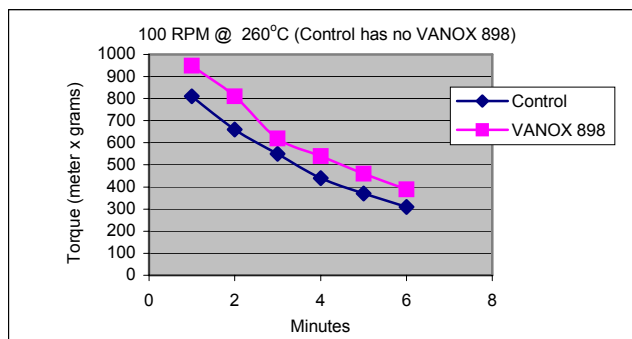


Figure 4: Brabender Processing Stability of Talc-filled Polypropylene

Conclusion:

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

Table 1

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

Table 2

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

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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