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Improving the profitability of low-VOC products

Catherine Malchaire[1]

(1) SONGWON Industrial Group

Emissions from polypropylene (PP) are one of the biggest challenges faced by car manufacturers today and those involved in the automotive value chain have been seeking ways of reducing them for many years. Standards developed to support their efforts are becoming increasingly stringent. Today, China is the country with the strictest regulations.

VDA 278, a standard that has been in place for 15 years, regulates the test procedure for non-metallic materials used for molded components in automobiles.

In the case of PP resins, volatiles are generated by various products, including catalysts, breakdown substances formed through polymer and additive transformation, contaminants and also by rapid production runs. A great deal of work has already gone into finding catalysts that improve automotive

polypropylene grades. In addition, resin producers sometimes have to reduce production run rates radically in order to achieve lower VOC emissions, for example by slowing down the pelletization step after polymerization of the PP. However, this can drastically affect profitability.

SONGWON has developed a new processing stabilizer for PP, Experimental XP2094, which combines cost efficiency with reduced VOC. XP2094 allows both VOC standards to be met and the pelletization step to be run faster. Resin producers can therefore maintain a close to average production run rate. This allows them to increase capacity for the manufacture of automotive grade products. It also prepares them to meet future more severe VOC regulations, such as those that already apply in China.

Compounding is the next step in the value chain. The formulations are highly complex and all components have to be tested for emissions, because every one of them can generate volatiles – fillers and their coupling agents, pigments, resins and other additives.

SONGWON has designed a range of stabilizer packages for automotive PP and glass fiber compounds to provide long term stability and reduce VOC emission levels in interior PP-based thermoplastic polyolefin (TPO) automotive applications.

SONGXTEND® 2124 is a long term thermal stabilizer that triples the heat stability of standard phenolic antioxidants. This makes it highly suitable for under the hood applications, which are exposed to very high temperatures.

SONGXTEND® 2123 is a long term thermal stabilizer that prolongs the life of PP automotive interior parts. To help manufacturers meet application requirements while reducing emissions, it needs to be combined with a low VOC processing stabilizer. For this reason, SONGWON developed SONGXTEND® 1103, a high performance product with excellent compatibility for the polymer matrix.

SONGWON's developments in the field of PP for automotive applications demonstrate that the right additivation solution can promote VOC reduction while allowing production run rates to be maintained.

	Under the hood	**Automotive interiors**
Resin producer – Processing stabilization	Standard stabilization	XP 2094
Compounder – thermal stabilization	SONGXTEND® 2124	SONGXTEND® 2123

SONGWON's additive portfolio for polypropylene compounds