Press Release – 20th August 2020

REPI unveils new grades of processing additives for polyurethane applications

Additives in polyurethanes are widely implemented to improve aesthetics, especially to cover inhomogeneities of product, that may occur; they are as well used as performance aids, to improve heat resistance and prevent from flaming, to reduce oxidation and protect from aging, these being common threats to physical properties of Polyurethanes.

Lucia Buffoni – Marketing Manager
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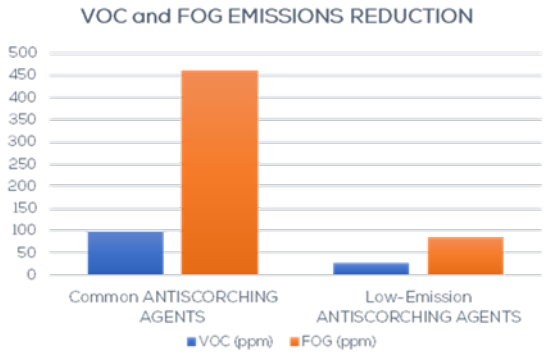
In a context of increasingly stringent regulations and standards set by industries, additives are under the magnifying lens, required to boost the performance of polyurethane parts and reduce their side-impact on people and environment.
Starting from here and trying to get the best, if we can put in this way, out of this unexpected global crisis called Covid-19 that has forced every industry to rethink processes and way of work, REPI has focused attention and efforts internally, challenging the R&D to work on innovation and improvement of existing additives.
As a result, the **brand new anti-FIAMMA range** joins REPI's additive lines: melamine-based and expandable graphite-based liquid dispersions that represent the answer to customers willing to move away from powders, highly volatile and polluting of working environments. REPI's grinding process of such powders in polyol greatly enhance the intrinsic fire resistance performance in the final product by increasing the contact surface of the active flame retardant with the polyurethane foam.

REPI antiFIAMMA MD (melamine dispersion) shows a considerable contribution to the formation of a char layer in the intumescent process that acts as a physical barrier between oxygen and polymer decomposition gases. At temperature higher than 200 °C, melamine sublimates diluting fuel gases and oxygen near the combustion source. Melamine absorbs a lot of heat, acting as a heat sink in fire situations.

REPI antiFIAMMA EGD (expandable graphite dispersion) interferes with the combustion process. Expandable graphite is a compound with high proportion of intercalated layers like nitrogen or sulphur. The graphite layer flakes expand under the heat influence during combustion process. The material expansion can suddenly and rapidly start at around 180-200 °C temperature and can be hundreds of times higher than the initial volume of the material. Expansion creates an intumescent layer on the surface of the graphite flake slowing down the spread of fire and minimising the generation of toxic fumes and gases.

The push for lower emissions is again at the basis of REPI's upgrade of its **Antiscorching range with the introduction of the new Low-emission grade Low-AO REPITAN** that inhibits phenol and aromatic amine release during the foaming process, cutting emissions dramatically while enhancing effectiveness of PU foams and minimizing the foam discoloration when exposed to NOx and upon exposure to light.



Safety means as well prevent accidents and minimize the risk of these happening. An example is electrostatic charging build-up in the PU productions, especially in areas with risk of explosion or in electronics industry.
In this context REPI has developed a solution that acts as permanent antistatic and anti-dust agent in PU application.

REPI High Performance Antistatic Additive (HPAA) is a medium polarity ionic liquid specifically tailored to improve conductivity properties of microcellular PU and TPU shoe soles, C.A.S.E. and PU composite applications.

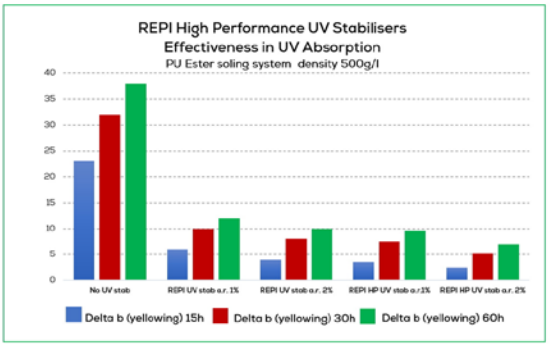
ELECTRICAL RESISTANCE ANALYSIS RESULTS (Internal Method)
Antistatic PU foams (Thickness 5cm – Density 26 g/l)

	REPI ANTISTATIC ADDITIVE a.r.%	Electrical resistance MΩ (megaohm)
PU FOAM DENSITY D26	0,00	out of range
	0,50	1900
	2,00	470

As mentioned, additives come to the rescue of aesthetics and protection. Damages caused by UV degradation mean severe aging and UV weathering, such as cracking or yellowing.

REPI's High Performance UV Stabilizers (HI-UV) combine UV absorbers and antioxidants that improve UV and heat resistance in PU applications like flexible foam, rigid foam and C.A.S.E. for use in Automotive and Transportation, Furniture and Bedding, Footwear, Building and Construction, Marine and Offshore industries.

Research and innovation are key to unveil business growth and to copying with unexpected emergencies and crisis, something that we are exactly experiences right now. REPI, as a world leader in colour and additive solutions for polyurethanes, works tirelessly to improve itself working especially of specialty additives that meet the needs of its Partners, putting its know-how and capabilities at their service.



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