

Development of a new liquid antioxidant for stabilizing XLPE compounds or for direct peroxide injection process.

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To satisfy the wire and cable markets increasing demands for improved performance and greater reliability, raw material suppliers must constantly innovate and develop new solutions. This is especially true for medium and high voltage applications where the trend for thinner wall insulation, while at the same time maintaining the same electrical gradient, requires the use of extra clean materials, whether polymers or additives.

The need for greater performance and cleanliness also applies to the antioxidants used in these applications. The new liquid antioxidant developed fulfills these requirements. The new levels of performance and cleanliness provide exceptional purity enabling greater reliability and extending the cable longevity in service.

This paper will present the technical data generated in the laboratory as well as data from cables that have been produced by the so called DPI (Direct Peroxide Injection) process.

As a novel antioxidant, it shows significant stability and compatibility with commonly used peroxides. There is no segregation, no discoloration, and no premature reaction before use, hence allowing preset mixtures to be used. The remarkably low freezing point that goes well below zero degree Celsius, also allows greater handling and processing flexibility for cables producers.

Contrary to commonly used antioxidants, it provides sufficient scorch protection whilst increasing the crosslinking speed. The new solution does not interact with the peroxide during crosslinking which enables the cable maker to either marginally increase his CV line speed or to reduce the peroxide content hence providing increased productivity, cost savings along with peroxide by products reduction.