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Chemflexx DOA Overview

Chemflexx DOA is The Chemical Company (TCC) brand for Dioctyl adipate (DOA) plasticizer. DOA is an ester of 2-ethylhexanol and adipic acid. It is a low-toxicity, biodegradable, light colored, oily liquid generally used as a plasticizer for PVC. The compound is sometimes blended with other plasticizers such as DOP and DOTP.

Chemflexx DOA features flexibility at low temperatures, good electrical properties, resistance to weathering, and good stability to heat. The product is used to manufacture clear food packaging films, children's toys, wire and cable.

Plasticizer Overview

Plasticizers are polymer additives that serve to increase the polymer's flexibility, elongation and ease of processing. In other words, they make the polymer more workable. In technical terms, the addition of a plasticizer generally causes a reduction in the cohesive intermolecular forces along polymer chains. The chains can then move more freely relative to one another, hence reducing the stiffness of the polymer.

The use of plasticizers began in the mid 1860s when castor oil was added to Cellulose Nitrate. The most commonly measured physical effects include melt viscosity, elasticity modulus, and the glass transition temperature. Other types of plasticizers have been used through the years, but in the late 1930s, phthalates were introduced because they were believed to be less toxic. The two most common plasticizers used today are di-2-ethylhexyl phthalate (DEHP) and di-isononyl phthalate (DINP). Both of which are generally used in the manufacture of PVC related products.

The Phthalate Plasticizer Market

In 1999, the global volume of plasticizers was approximately 10 billion lbs., or about \$5 billion, The market has had an average yearly growth rate of 2-3 percent.

Of these plasticizers, standard phthalate esters comprise over 85 percent of the tonnage produced every year. Phthalates command the market due to their low cost, ease of use and availability. Other common plasticizers include adipates, polymeric and trimellitates.

Over 90 percent of plasticizer volume goes into flexible PVC applications. Plasticized PVC polymer is found in a wide variety of products including food packaging, construction materials, toys, and medical devices. Yet PVC in its "true" form is a hard, brittle polymer used in PVC pipe for the construction industry.