

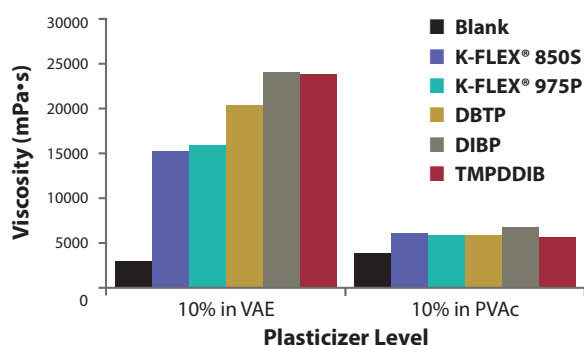


KFLEX[®] Dibenzoate Plasticizers for Adhesives

Dibenzoates have long been the preferred plasticizer for waterborne adhesive compounds and are **value-added alternatives to phthalates** such as dibutyl phthalate and diisobutyl phthalate, which have become increasingly scrutinized for health and safety concerns. Benzoates have been proven to offer the **best balance of performance and value** to alternative chemistries in latex adhesives.

K-FLEX[®] dibenzoate chemistry is an excellent solution for formulators looking to satisfy both legislative requirements and consumer demand. In addition to excellent performance, benzoate chemistries have favorable regulatory and environmentally-friendly profiles—**non-phthalate, low-VOC, non-SVHC, global registrations, REACH compliant**.

Viscosity Response



Dibenzoate plasticizers such as K-FLEX[®] 850S provide strong viscosity response of the base emulsion to the plasticizer, demonstrating compatibility and allowing flexibility.

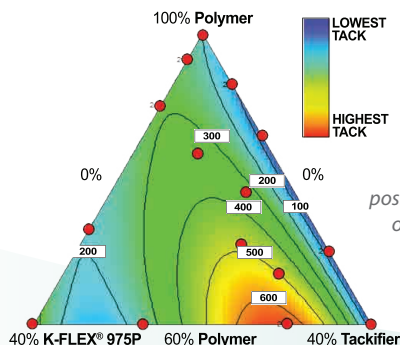
Next Generation Products

The principal reason that dibenzoates have long been established as general purpose plasticizers for adhesive applications, particularly in latex compositions, is due to their polar nature. The polarity of dibenzoate plasticizers results in excellent **compatibility with commonly used polymers** in the adhesives industry, such as polyvinyl acetate and vinyl acetate-ethylene copolymers. Good compatibility is **critical to provide key performance characteristics** in latex adhesives.

While it is certainly important today for the adhesives industry to identify ways to become greener and more committed to using safe materials, the overriding fact remains that the materials we use must function as required while providing value. In response to continued needs in the adhesives industry, Emerald Kalama Chemical developed **K-FLEX[®] 850S**, a blend of dibenzoates tailored to provide an optimal **balance of handling, performance, and cost-effectiveness** in this competitive market.

K-FLEX[®] 850S and other K-FLEX[®] dibenzoate products offer **benefits in manufacturing**, due to their high compatibility with a wide range of polymers and systems, providing:

- Excellent viscosity response and chalk point/Tg depression,
- Extended open/reduced set times,
- Improved wet tack, and
- Improved dry film resistance to oil, grease, and water.



Loop Tack, -20°C Polymer

Dibenzoate plasticizers such as K-FLEX[®] 975P have a positive effect on the tack of a PSA, which is a key reason to use a plasticizer in this application.



Recommended Products for Adhesives:

K-FLEX® 850S

A value-added blend of traditional dibenzoate plasticizers optimized for waterborne applications. Very effective low-VOC choice for waterborne adhesives and latex caulks.

K-FLEX® 500

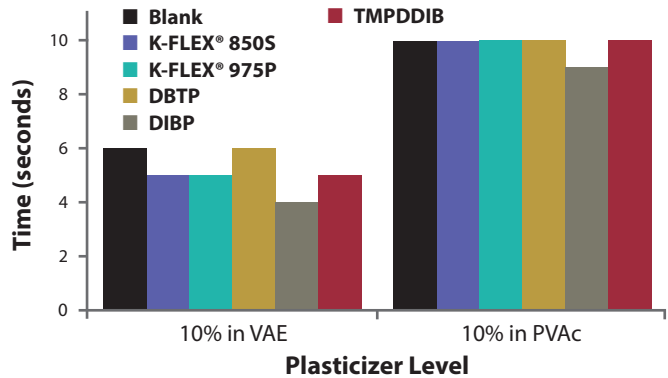
A classic blend of traditional dibenzoate plasticizers. Excellent choice for use in waterborne adhesives, hot melt adhesives, and latex caulks.

K-FLEX® 975P

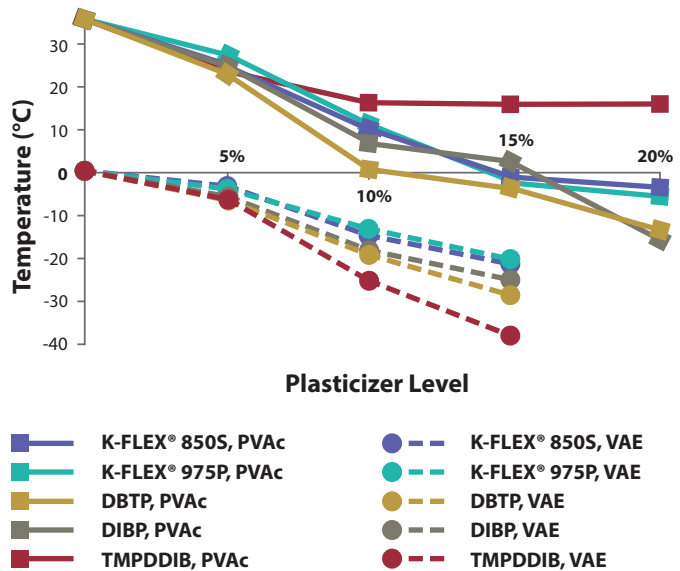
Economical to use and created to offer a broad range of compatibility with polar polymers, with improved handling due to its lower freeze point.

Emerald Kalama Chemical is a business group of Emerald Performance Materials, a manufacturer of additives and polymers that make your products last longer, look, taste, smell, or perform better. We are a world-scale producer of toluene oxidation products, shipping over 500 million pounds annually to approximately 75 countries across the globe. Products include benzoic acid and various benzoate and dibenzoate ester, alcohol and aldehyde derivatives for food preservatives, flavor and fragrance ingredients, plasticizers and industrial applications. With manufacturing in Kalama, WA (US), Rotterdam, Netherlands, and Widnes, UK – serving customers globally.

Set Times



Tg Suppression



In latex adhesives, dibenzoate plasticizers such as K-FLEX® 850S provide excellent performance in both VAE and PVAc emulsions when compared to other commercially available alternatives.

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