



K-FLEX® Low-VOC Plasticizers for Floor Polish Applications

K-FLEX® plasticizers and coalescents are known for their excellent performance and balance of properties. They are non-phthalate, low in VOCs, and have positive attributes from a product safety and health perspective compared to other choices.

For many years, our customers have turned to dibenzoate plasticizers because they offer the best overall performance and value, delivering excellent performance features to a growing range of applications, such as adhesives, sealants, paints, coatings, and PVC plastisols. K-FLEX® products are also known for their compatibility with a wide range of polymers, particularly polar materials. This makes them highly effective in many of the most widely used non-olefin based polymers.

Emerald Kalama Chemical also produces sodium and potassium benzoate, benzoic acid and intermediates, and specialty flavor and fragrance ingredients, which the company sells globally through its distribution partners.

K-FLEX® dibenzoate plasticizers are an excellent choice for floor polish applications. Our data shows that blending K-FLEX® plasticizers with TBEP (tributoxyethyl phosphate) offers optimization of your formulation both in efficiency and performance while allowing a reduction in overall TBEP loading.

K-FLEX® plasticizers function as permanent plasticizers and can partially replace TBEP. Historically, either DBP (dibutyl phthalate) or BBP (butyl benzyl phthalate) plasticizers have been used, and more recently benzoate plasticizers have been developed for use and replacement of phthalates.

Data was developed on two starting point floor polish formulations—one based on a cross-linked styrene acrylic (MFFT = 65°C) and the other on an acrylic (MFFT = 73°C)—wherein K-FLEX® 975P, K-FLEX® PG, and K-FLEX® 850S each demonstrated excellent overall performance characteristics.

The most notable floor polish improvements demonstrated by the K-FLEX® plasticizers relative to the DBP or TMPDMIB controls included:

- **Excellent leveling between coats and very good recoatability**
- **Better gloss development between consecutive coats with use of K-FLEX® 850S and K-FLEX® PG**
- **Excellent hardness development, achieved within 21 days for floor polish utilizing either K-FLEX® 975P, K-FLEX® 850S, or K-FLEX® PG**

In both floor polish finish formulations the additional polish performance properties measured were: viscosity and stability testing, minimum film formation temperature (MFFT) reduction, glass transition temperature (T_g) suppression, water spot resistance, removeability, powdering, and soil resistance.

K-FLEX® products also demonstrated:

- **Remarkable reduction in MFFT and T_g suppression**
- **Good removability, with K-FLEX® PG performing better compared to the DBP and TMPDMIB controls**
- **Good overall water spot resistance, recoatability, and powdering resistance**
- **Equivalent viscosity, stability, and soil resistance with some slight improvement compared to the controls**

Please contact Emerald Kalama Chemical to discuss the use of K-FLEX® plasticizers in your floor polish formulations as well as to see all related data



Orders and Inquiries:

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Recommended Products for Floor Polish

K-FLEX® 975P – Blend of DEGDB, DPGDB and propylene glycol dibenzoate (PGDB) with a broad range of compatibility with polar polymers. Due to its lower freeze point, it has better handling properties than other modern binary dibenzoate blends. In floor polish applications, K-FLEX® 975P offers a range of performance benefits, including excellent leveling, recoatability, hardness development, removeability/recoatability, and resistance to soiling, water spots, and powdering. Also recommended for adhesives, sealants, paints, coatings, and vinyl.

K-FLEX® 850S – Classic dibenzoate blend based on DEGDB and DPGDB optimized for waterborne latex applications. In coatings, K-Flex 850S is low in VOCs to assist the formulator on issues of VOC reduction. In floor polish applications, K-FLEX® 850S improves gloss development between consecutive coats, as well as excellent leveling, recoatability, hardness development, removeability, and resistance to soiling, water spots, and powdering. Also recommended for adhesives, flexographic inks, paints, and coatings.

K-FLEX® PG – A value-added blend of classic dibenzoate coalescents based on PGDB. A very high solvator, K-FLEX® PG is particularly useful in blends of plasticizers to tailor characteristics and end-performance. In floor polish applications, K-FLEX® PG improves gloss development between consecutive coats, as well as excellent leveling, recoatability, hardness development, removeability, and resistance to soiling, water spots, and powdering. Also recommended for vinyl applications and silane-modified polymer sealants.

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 425 million pounds annually to nearly 70 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, coalescents and industrial applications. Manufacturing in Kalama, WA (USA) and Rotterdam, The Netherlands. Serving our customers globally.

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