



VELSICOL
CHEMICAL LLC

Velsiflex[®] in Sealants

**HIGH-PERFORMANCE SEALANTS.
WAY AHEAD OF THEIR TIME.**

The range of high-performance organic elastomeric sealants – polyurethanes, silane hybrids, polysulfide could not exist without highly solvating, higher permanence plasticizers. In particular, low – to medium-modulus construction sealants are critically dependent on the optimized choice of plasticizer. To a lesser extent, even the class known as “adhesive/sealants” rely on premium plasticizers for processability and application viscosity control.

PROFILE

Velsicol Chemical LLC is a specialty and commodity chemical company that manufactures, distributes and sells a diverse range of performance chemicals. Velsicol is the world market leader in cyclopentadiene chemistry, including Hexachlorocyclopentadiene and Chlorendic Anhydride. We are also a leading producer and marketer of benzoate plasticizers for various polymer additive applications with our Velsiflex® branded product line. This product portfolio serves a wide range of customers and end-use applications in the unsaturated polyester resin market as well as the flame retardant, epoxy resin, adhesive, caulk, paint and coating, PVC and plastisol markets. Velsicol recently re-entered the benzoic acid market and is a testament to its commitment to upstream integration.

Velsicol has been in business since 1931, and through the years, we have shown that we will not compromise on our core values of **SERVICE, QUALITY AND PRODUCT STEWARDSHIP**. Together, these values define our day-to-day approach of working with our customers on a solutions-focused and value-added basis of doing business. We are a company that has a long history of partnering with our customers with many long-standing relationships that have lasted multiple decades.

Velsicol's global corporate headquarters is in suburban Chicago near O'Hare International Airport. We also have strategic manufacturing, distribution, and sales and marketing offices located all over the world in support of a global and multinational customer base.

HISTORY

Velsicol is a company rich in history, dating back to its formation in 1931. Initially, the company was involved in selling petroleum-derived chemicals. Over the years, the company was also heavily involved in various agricultural-related businesses, providing a wide range of pesticides and insecticides. In the 1980s, Velsicol was taken private when the company became more focused on benzoic acid and derivatives and more specifically, plasticizers.

In 2005, the company was purchased by Arsenal Capital, a private equity firm. At that time, the focus of the company continued to be investing in high-performance and specialty chemicals. In 2010, a sister company of Velsicol's, Genovique Specialties, was sold. In 2011, Velsicol formed Resnovae Technologies, a business that sells a wide range of brominated and halogen-free flame retardants. In 2012 Velsicol was sold to its current management team whose members have all been with the company for many years. Today the business is run as a privately owned company by this management team.

Throughout its long and storied history, Velsicol has grown to become a global business that continues to focus on the basics of building a strong foundation that is anchored with a solid set of values. Forging partnerships with its customers, suppliers and communities commands its attention, as does maintaining a commitment to the specialty chemicals market.

With more than 80 years' experience under its belt, Velsicol is a company that is fully focused on sustainable growth, both organically and inorganically. The Velsicol of today and tomorrow will carry on the tradition and commitment to its core values of **SERVICE, QUALITY AND PRODUCT STEWARDSHIP**.

HISTORY - TIMELINE



VELSIFLEX® PRODUCT PORTFOLIO

Velsiflex plasticizers are an environmentally friendly option for formulators looking for an alternative to commodity and specialty phthalate esters. Velsiflex products are based on benzoic acid as a building block and are used in a number of applications, including adhesives, sealants, caulk, coatings and inks, plastisol and various flexible PVC uses. Velsiflex plasticizers are recognized as high-solvating, polar, monomeric plasticizers. In most cases, they provide superior performance compared to other plasticizers in the area of compatibility with the polymer, efficiency or desired softness and the overall permanence of the ester staying in the polymer. Velsiflex plasticizers are performance-adding low- to medium-viscosity fluid esters in a wide range of plastic additive end uses.

VELSIFLEX 320

Velsiflex 320 is a proprietary blend of benzoate esters. This blend is typical of dibenzoate plasticizers and is formulated for waterborne latex applications to optimize efficiency and cost effectiveness. Like all Velsiflex products, it has full FDA approvals for adhesives.

VELSIFLEX 328

Velsiflex 328 is a blend of dipropylene glycol and diethylene glycol dibenzoate in an approximately equal ratio. Velsiflex 328 is primarily known for its exceptional performance in polyvinyl acetate adhesives. It displays excellent wet tack, set times and open time performance. It also improves adhesion to acrylic latex caulks and is a high-solvating PVC plasticizer.

VELSIFLEX 342

Velsiflex 342 is one of the most popular liquid plasticizers. It is a high-solvating plasticizer containing mostly dipropylene glycol dibenzoate. It is used in a wide variety of applications, including caulk, adhesives, resilient flooring, PVC-coated fabrics and artificial-leather cloth. In PVC, it acts as a medium-viscosity high solvator that saves energy and improves processability. Vinyl applications using Velsiflex 342 have excellent resistance to extraction from solvents and oils. It also works with vinyl to make it UV – light-degradation resistant and stain resistant.

VELSIFLEX 342 S

Velsiflex 342 S is mostly dipropylene glycol dibenzoate. It is a lower moisture/lower hydroxyl plasticizer. It has been widely used in 2K polyurethane systems to reduce cure interface, which also provides better rebound, improved tear strength and reduced swell with solvents. It is also used in many polysulfide sealant applications and has proven to be a very efficient ester from a softening agent perspective.



DO YOU HAVE ANY QUESTIONS? NEED MORE INFORMATION?

Call us now at 1 877-847-8351 or email us customerservice@velsicol.com

PARADIGM SHIFT TOWARD RESULTS

Plasticizers were first incorporated into high performance sealants to eliminate stress-causing shrinkage common in solvent-based sealants. High performance non-shrink sealants are almost universally based on liquid reactive polymers, but these still need some help with viscosity reduction and plant processing of the sealants. So high performance plasticizers like Velsiflex 342 S became an integral part of the formulator's inventory. VOC elimination was being done for performance reasons, not for regulation compliance.

ANTICIPATING AND RESPONDING TO UNMET NEEDS

Today's high performance plasticizers are multi-taskers in the new breeds of non-shrink elastomeric sealants. Velsiflex 342 S controls modulus and hardness, maximizes elongation and elastic recovery. In polyurethane sealants – the leading technology in organic sealants – Velsiflex 342 S can pull double duty by acting as primary plasticizer for PVC gel systems, which enable the most reliable unprimed adhesion to masonry. The ultra-low, highly reproducible hydroxyl content of Velsiflex 342 S makes it ideal for use in chemistries like urethane or silane hybrids.

WHAT THE FUTURE HOLDS

As VOC regulations become more restrictive, solvent-based sealants continue to disappear and the need for non-shrink, high performance-plasticized elastic sealants expands. This is even true in DIY, once the bastion of lower performance sealing and caulking compounds. At the same time, green building certification programs like LEED, and new regulatory requirements, make it imperative to continuously seek new and better non-phthalate solutions. Velsiflex 342 S is such a solution.



GLOBAL CORPORATE HEADQUARTERS

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