

# Choosing the Right Plasticizer for Your Vinyl Film

There are many options for plasticizers used in vinyl film formation, and it's critical to work with a manufacturer willing to partner with you to find your ideal solution.

Presco, the market expert in vinyl formation, is ready to fulfill that role.

Presco can help guide you in the right direction and make sense of the many plasticizer options, ensuring your film addresses all your unique performance needs and challenges.

Plasticizer	Type	Advantages	Disadvantages
 <p>DINP (Diisononyl phthalate)</p>	General Purpose	Largest volume GP high molecular weight plasticizer in US, low price, high phthalate, good durability and processability, low volatility, aging resistance, high permanence, excellent substitute for DOP, REACH readiness	Listed on CA Prop. 65 List of cancer-causing chemicals, ortho-phthalate regulatory concerns
 <p>DOTP (Diocetyl terephthalate)</p>	General Purpose	Terephthalate, CPSIA compliant, not listed on CA Prop. 65 List, Economic alternative to DINP and DOP, good permanence and low temperature impact, REACH Readiness	Exudation issues in some cases, printing ink formulations may need to be changed if switching from alternative GP plasticizers
 <p>DEHP/DOP (Di(2-ethylhexyl) phthalate/ dioctyl phthalate)</p>	General Purpose	Used in medical films (blood, chemical storage), good comprehensive properties and stability to heat and ultraviolet light, a broad range of compatibility, excellent resistance to hydrolysis	Low phthalate listed on CA Prop. 65 List of cancer-causing and development-hindering chemicals, listed on REACH Lists of SVHC, ortho-phthalate regulatory concerns
 <p>DUP (Diundecyl phthalate)</p>	Linear Plasticizer	Good low temperature performance, improved resistance to UV and outdoor weathering, high temperature stability, low volatility, good low fog performance	High price
 <p>ATBC (Acetyl Tri-n-Butyl Citrate)</p>	Citrate Plasticizer	Non-toxic, innocuous, tributyl ester, good low temperature performance, accepted for FDA use	Exudation issues in some cases, high volatility, poor fogging performance
 <p>DOA (Diocetyl adipate)</p>	Adipate Plasticizer	Primary or secondary plasticizer, good low temperature performance, electrical properties, resistance to weathering, and stability to heat, accepted for FDA use	More volatile, exhibits poorer fusion, possesses higher migration rates, high price
 <p>Phosphates (Phosphate Ester)</p>	Phosphate Plasticizer	Typically used as a secondary plasticizer to impart flame retardancy or smoke reduction, some are used to improve resistance to UV light, enhanced weatherability	Phosphate esters that show the best flame retardancy perform poorly for low temperature environments and phosphate esters that have good low-temperature properties are poorer flame retardants, some chemistries susceptible to hydrolysis, some esters hinder thermal stability
 <p>Brominated Phthalates</p>	Flame-Retardant Plasticizer	Used as a secondary plasticizer to impart flame retardancy or smoke reduction, good electrical and thermal properties, good plasticizing properties and compatibility with primary plasticizers, low volatility	High price, potential concerns from customers about using halogenated flame retardants



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