



# Environmentally Friendly Solvents

Overview



## ENVIRONMENTALLY FRIENDLY SOLVENTS

Product	Description
<b>SOLKETAL</b> 2,3-O-Isopropyliden Glycerin	Solketal is a universal, versatile and environmentally friendly solvent. It is based on plant-derived, biogenic glycerin that is produced from renewable resources (60–70%). Solketal does not require special labelling because it is non-toxic and non-irritating. Solketal is fully soluble in and with water, as well as in aromatic and cycloaliphatic solvents. Additionally, Solketal can be mixed with aliphatics, ethers, hydrocarbons and vegetable oils. Solketal is especially well suited to binder systems based on Polyesters, Polyacetates, Polyacrylates, Epoxides, Polyurethanes, Urea, Melamin and Polyesterimides.
<b>EEP</b> Ethyl Ethoxy Propionate	Ethyl Ethoxy Propionate is a high-performance solvent with outstanding solvency that can easily replace other conventional solvents (NMP, glycol ethers and ether acetates). The propionyl group in the middle of the linear structure lends EEP a series of advantageous properties in a unique combination that cannot be found in other solvents. EEP is harmless to humans and animals. EEP is readily biodegradable and has a very mild and pleasant odour. EEP is almost insoluble in water and shows a very low evaporation. It has a high electrical resistance and a low surface tension.
<b>DPGDME</b> Dipropylene Glycol Di-Methyl Ether	DPGDME is a versatile, environmentally friendly solvent with a high distillation range. It is relatively inert and can be used in proton-sensitive systems such as water-based polyurethane coatings. The lack of a free hydroxyl group makes it practically unique. Additionally, DPGDME can be used as an azeotropic solvent for esterification reactions. Thanks to its excellent stability, solvency and coupling performance, DPGDME stands out for its high compatibility with a wide range of aqueous formulations.
<b>PGMEA (PMA)</b> Propylene Glycol Methyl Ether Acetate	PGMEA (PMA) is a colorless, very low-viscosity solvent. The free OH group is encapsulated by the acetate group, so PGMEA performs very neutrally. PGMEA is a very general-purpose solvent, but is ideally suited for a wide variety of solvent-based resin systems with high solids content. However, its use in formulations containing polyisocyanates is particularly recommended.
<b>PC</b> Propylene Carbonate	Propylene Carbonate is an environmentally friendly solvent that is non-toxic for humans and animals. Given its polarity and high boiling point, it is suitable for a broad spectrum of applications. PC is stable under most conditions and neither hygroscopic nor corrosive. PC is used in synthetic resins, polyurethanes, inks, coatings and cleaning and degreasing applications. It is compatible with isocyanates and is used as a reactive diluent in order to reduce costs and handling efforts, as well as to improve processing characteristics. PC is also used as an electrolyte in rechargeable lithium-ion batteries (usually in combination with other solvents).
<b>DBE</b> Dibasic Esters	This green solvent is a mixture of dimethyl esters of dicarboxylic acids. DBE is not harmful to health (no hazard statements), non-corrosive, non-flammable, readily biodegradable and has a mild fruity odour. Given its high dissolving power, DBE is a cost-effective alternative to classical solvents such as methylene chloride or NMP, which are possibly harmful to health or have already been banned. It is poorly soluble in water and instead soluble in alcohols, ethers, ketones and many hydrocarbons. DBE is resistant in alkaline environments and features good abrasion resistance. Additionally, it is rapidly biodegrading.
<b>DBE-IB</b> Dibasic Esters IB	Similar to DBE, DBE-IB is a mixture of iso-butyl esters of dicarboxylic acids. This results in even improved properties, such as a much higher distillation range than DBE. Additionally, its odour is even milder. The properties of DBE remain fundamentally the same. It is non-corrosive, non-flammable, readily biodegradable and not harmful to health. It dissolves poorly in water and instead dissolves in alcohols, ethers, ketones and many hydrocarbons. DBE-IB is also resistant in alkaline environments and features good abrasion resistance. Additionally, it is rapidly biodegrading.
<b>EC</b> Ethylene Carbonate	Ethylene Carbonate is an environmentally friendly solvent that is non-toxic for humans and animals. Given its polarity and high boiling point, it is suitable for a broad spectrum of applications. EC is stable under most conditions and neither hygroscopic nor corrosive. EC is used in synthetic resins, polyurethanes, inks, coatings and cleaning and degreasing applications. It is compatible with isocyanates and is used as a reactive diluent to reduce costs and improve handling and processing properties. Furthermore, EC is also used as an electrolyte in rechargeable lithium-ion batteries (usually in combination with other solvents).

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<b>TEGDME (4E-Glyme)</b> Tetra-Ethylene Glycol Di-Methyl Ether	TEGDME is a versatile functional solvent that is especially suitable for coatings containing alkali metals. Additionally, it supports film-forming properties. The especially high boiling point of the solvent also deserves special mention.
<b>DMC</b> Di-Methyl Carbonate	DMC is an environmentally friendly, colourless solvent that has a boiling point of approx. 90 °C. It is excepted from the limits of volatile organic compounds (VOC). However, it is readily flammable (−17 °C). It can dissolve most conventional coating resins and thus has a broad application spectrum. DMC is also stable under most conditions and neither hygroscopic nor corrosive. It is compatible with isocyanates and can be used as a reactive diluent.
<b>PPH</b> Propylene Glycol Phenyl Ether	PPH is a slow-evaporating, very hydrophobic glycol ether and ideal in coalescing and carrier solvent applications. This product offers a low odour and it can function as both a dye solubilizer and as a dye carrier. PPH shows a favorable environmental profile and is readily biodegradable. Low vapor pressure allows formulations to meet volatile organic compound regulations. PPH provides superior performance for end use applications and formulations. The formulations may require less performance solvent than with other functional solvents.
<b>DVL</b> Delta-Valerolacton	Delta-Valerolacton (DVL) is an organic lactone-compound used as a chemical intermediate in manufacturing of coatings and dispersing agents. It is typically used as a co-monomer for polycaprolactone polymers effectively reducing the overall polymer melting point. <p>Pharmaceutical            DVL is used in the synthesis of an acid chloride which is subsequently utilised as a building block in active ingredients.</p>





## APPLICATIONS AND BOILING POINT

	CAS Number	Boiling Point	Paints/Coatings	Printing Inks/Inks	Adhesives	Cleaner/Degreaser	Fragrances	Agrochems	PU Foams	Electrolytes	Paint Strippers	Anti-graffities	Pharma/Cosmetics	Additives	Dyes/Color-Pastes	Synthetic Resins /Binders
<b>SOLKETAL</b> 2,3-0-Isopropyliden Glycerin	100-79-8	~188 °C	x	x	x	x	x	x			x	x		x		x
<b>EEP</b> Ethyl Ethoxy Propionate	763-69-9	~170 °C	x	x							x	x				x
<b>DPGDME</b> Dipropylene Glycol Di-Methyl Ether	111109-77-4	~190-200 °C	x	x		x		x								
<b>PGMEA (PMA)</b> Propylene Glycol Methyl Ether Acetate	108-65-6	~148-151 °C	x	x		x									x	
<b>PC</b> Propylene Carbonate	108-32-7	~240-243 °C	x	x		x			x	x						x
<b>DBE</b> Dibasic Esters		~196-235 °C	x	x		x			x		x	x	x			x
<b>DBE-IB</b> Dibasic Esters IB		~275-295 °C	x	x		x					x	x	x			
<b>EC</b> Ethylene Carbonate	96-49-1	~244-246 °C	x	x		x			x	x						x
<b>TEGDME (4E-Glyme)</b> Tetra-Ethylen Glycol Di-Methyl Ether	143-24-8	~260-280 °C	x	x	x						x					
<b>DMC</b> Di-Methyl Carbonate	616-38-6	~90 °C	x	x		x			x	x						x
<b>PPH</b> Propylene Glycol Phenyl Ether	770-35-4	~241 °C	x	x		x								x	x	x
<b>DVL</b> Delta-Valeralacton	542-28-9	~230 °C	x										x	x		x

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