



## How can EMEROX® Polyols help you improve your CASE applications?

EMEROX® Polyols are engineered for performance and sustainability. Our polyols provide formulators and end-users with enhanced performance properties, increased efficiencies, and sustainability. They are excellent raw materials for use in the manufacture of coatings, adhesives, sealants and elastomers.

EMEROX Polyols offer unique performance characteristics for CASE applications, including a hydrophobic backbone structure and low viscosity when compared to an adipate equivalent. These polyols offer up to 100% primary hydroxyl and include true linear diol and branched structures.

EMEROX Polyols are ideal for use in high performance CASE applications where hydrophobic properties, chemical resistance, and adhesion properties are desired.

PRODUCT NAME	HYDROXYL VALUE	VISCOSITY CP @25°C	ACID VALUE	FUNCTIONALITY (CALCULATED)	BIO-BASED CONTENT	DESCRIPTION
EMEROX® I 4511	110	1,500	≤ 1.5	2.0	78*	General purpose, 1,000 molecular weight, linear diol polyol based on ethylene glycol (EG) azelate chemistry.
EMEROX® I 4535	355	400	≤ 1.5	2.0	69**	Low viscosity, short chain linear diol based on ethylene glycol (EG) azelate chemistry.
EMEROX® I 4550	50	6,000	≤ 1.5	2.0	82*	General purpose, 2,200 molecular weight, linear diol polyol based on ethylene glycol (EG) azelate chemistry.
EMEROX® I 4555	50	Waxy solid (500 Cp @ 75°C)	≤ 1.5	2.0	82*	A 2,200 molecular weight, linear diol polyol based on ethylene glycol (EG) azelate chemistry. More hydrophobic than EMEROX® I 4550.
EMEROX® I 4637	370	1,700	≤ 1.5	2.7	99**	Low molecular weight branched azelate polyol targeting coating and adhesive applications.
EMEROX® I 4801	105	2,600	≤ 1.5	~2.2	90**	EG dimerate polyol for applications where highly hydrophobic characteristics are required.

\*USDA Certified Biobased Product.

\*\*Bio-based content is an estimate, pending final testing.



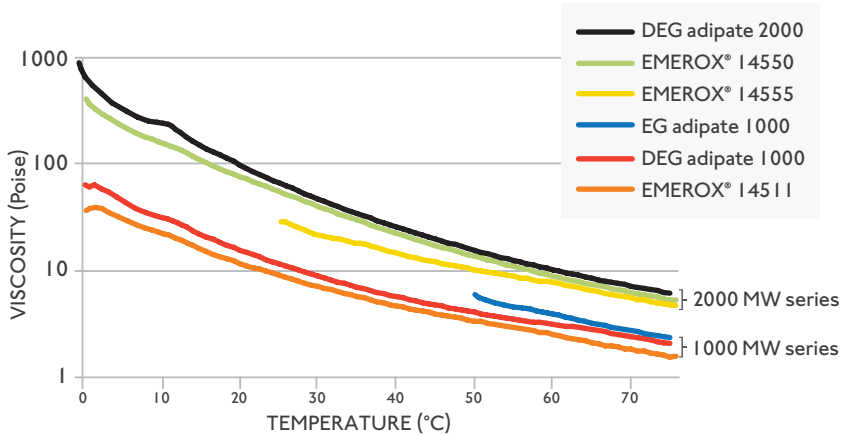
## Key Benefits

- Excellent polyester polyols for a broad range of applications
- Hydrophobic backbone with excellent chemical and moisture resistance
- Superior low temperature performance (low Tg)
- Low moisture absorption and moisture vapor transmission properties
- Improved solvent resistance, especially polar solvents
- Improved adhesion properties in adhesive and coating systems
- Excellent resistance to oxidation, UV
- Ease of use – lower viscosity than a typical DEG or EG adipate polyol of similar MW. Not shear thinning
- Engineered to perform predictably, with structures similar to petrochemical polyols
- Based on well-established azelaic or dimer acid feedstocks offering high bio-based content from 69-99%, depending on grade

## Typical Product Characteristics

### Viscosity Profile

EMEROX® Polyols have a lower viscosity than similar EG or DEG adipate polyols.



### Glass Transition Temperature (T<sub>g</sub>) and Hansen Solubility Parameters

POLYOL	T <sub>g</sub>	HANSEN SOLUBILITY PARAMETERS			
	°C	δ <sub>D</sub>	δ <sub>P</sub>	δ <sub>H</sub>	R <sub>0</sub>
EMEROX® I4511	-57	17.0	9.0	7.2	8.0
EMEROX® I4535	-55	16.7	9.4	10.8	13.1
EMEROX® I4550	-51	17.0	9.0	7.2	8.0
EMEROX® I4555	-54	17.0	9.0	7.2	8.0
EMEROX® I4637	-56	16.6	9.9	11.4	8.0
EMEROX® I4801	-58	16.7	5.8	7.9	8.9

## Unfilled Model Coating Example\*

### Composition

RAW MATERIAL	WT %
EMEROX® I4511	37
EMEROX® I4637	55
Crosslinker	5
Surfactants	1.5
Silane	1
Catalyst	0.1
Stabilizer	0.4
Total	100
HDI Trimer	1001

### Coating Characteristics

PROPERTY	RESULT
Set time at RT	10 hr
Tack-free time @ RT	24 hr
Pencil hardness	3B
MEK double rub, 50x	pass
Pull off adhesion, ground steel	>550 psi
Pull off adhesion, blasted steel	>600 psi
Pull off adhesion, smooth aluminum	>300 psi
Gloss, 20°	50
Gloss, 60°	100
Gloss, 85°	75
QUV, 3000 hrs gloss ret.	99+%

### Application

Spray applied 2k, direct to metal, diluted with 50% MEK

\*For details on this model coating example, see Emery's article in the May 2017 issue of PCI magazine: "Achieving Performance and Sustainability Objectives with Biobased Polyols".

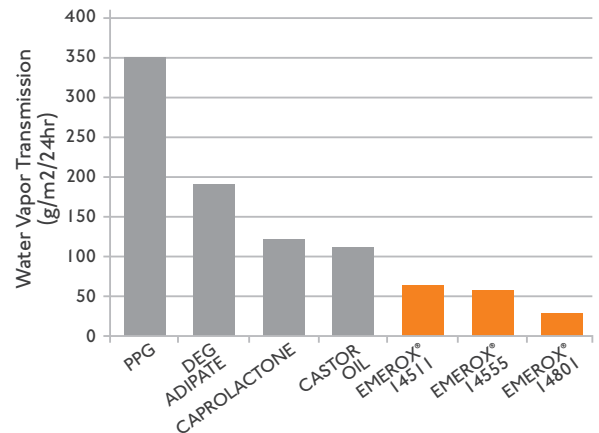
### Chemical Resistance: 24 Hr Spot Test

**Excellent resistance to:** aliphatic and aromatic hydrocarbons, glycols, water, polar aprotic solvents, bleach

**Good resistance to:** caustic, chlorinated solvents, DEET, suntan lotion, weak acids

**Not recommended for:** strong or concentrated mineral acids

### Water Vapor Transmission



\*ASTM D1653-13 Proc. B. 2 mils/22°C /50% RH

To request a sample or to find out more about our EMEROX® Polyols for CASE applications, contact [EFP.Americas@emeryoleo.com](mailto:EFP.Americas@emeryoleo.com) or visit [www.emeryoleo.com/polyols](http://www.emeryoleo.com/polyols)

Disclaimer: The content in this document is provided on an "as is" and "as available" basis purely for informational purposes and, unless and to the extent specifically agreed otherwise for a sales transaction, does not constitute any warranty, whether express, implied or statutory, including but not limited to warranties or guarantees of merchantability, fitness or suitability for a particular purpose nor any representations of a binding nature. EMERY OLEOCHEMICALS EXPRESSLY DISCLAIMS ANY RESPONSIBILITY FOR THE SUITABILITY OF THE PRODUCTS FOR ANY SPECIFIC OR PARTICULAR PURPOSES INTENDED BY THE USER. Suggestions for the use and application of the products and guide formulations are for informational purposes only and you are advised to carry out any necessary steps to test the suitability of the products for your intended processes and purposes. You are solely responsible for compliance with all applicable laws and regulations in use of the products including any third party intellectual property rights and shall bear all liability or risk arising from use of the products. All indications marked with a TM or ® symbol are trademarks belonging to legal entities within the Emery Oleochemicals group of companies.

Release 08/2019