

# VINYL ESTERS IN CHLORINE SERVICE

This report contains excerpts from laboratory tests conducted by Interplastic Corporation with a customer in paper and pulp processing. The results compare the performance of vinyl ester resins available from Interplastic.



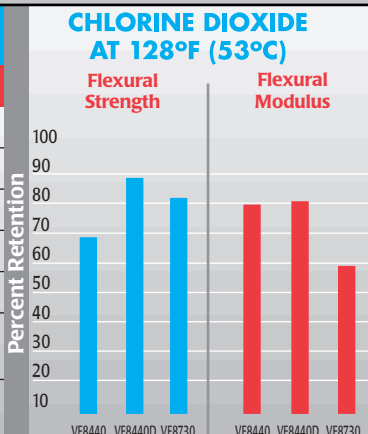
INTERPLASTIC CORPORATION  
Thermoset Resins Division

Our customer returned to us the ASTM C581 type coupons for testing. All the coupons were manufactured with a synthetic veil on the surface as the corrosion barrier. They had been immersed for 144 days.

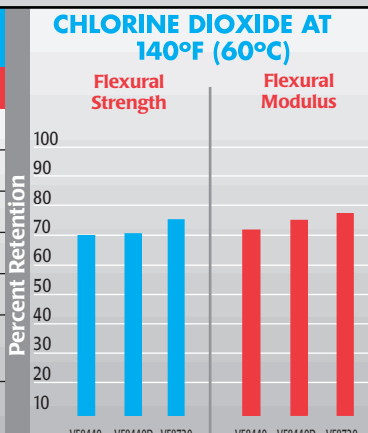
<b>*WHITE LIQUOR AT 120°F (49°C) AND 11.6pH</b>			
<b>CATALYST SYSTEM</b>	<b>MEKP/Co</b>	<b>BPO/DMA</b>	<b>MEKP/Co</b>
Resin	VE8440	VE8440	VE8730
Flexural Strength, psi (MPa)	19,000 (131)	12,100 (83)	13,400 (92)
Percent Retention	95	60.5	68.7
Flexural Modulus, psi x 10 <sup>5</sup> (MPa)	8.34 (5750)	3.62 (2500)	6.04 (4170)
Percent Retention	91.3	40.6	65.0
Barcol Hardness, 934-1 gauge	35-40	35-48	40-44
Percent Retention Barcol Hardness, 934-1 gauge	92.5	92.5	100

\*Dilute sodium hydroxide with chlorine dioxide and chlorine.

<b>CHLORINE DIOXIDE AT 128°F (53°C)</b>				<b>CHLORINE DIOXIDE AT 128°F (53°C)</b>	
<b>CATALYST SYSTEM</b>	<b>MEKP/Co</b>	<b>BPO/DMA</b>	<b>MEKP/Co</b>	<b>Flexural Strength</b>	<b>Flexural Modulus</b>
Resin	VE8440	VE8440	VE8730		
Flexural Strength, psi (MPa)	13,100 (90)	17,900 (123)	15,500 (107)		
Percent Retention	64.9	88.6	79.5		
Flexural Modulus, psi x 10 <sup>5</sup> (MPa)	6.73 (4610)	6.91 (4770)	4.94 (3410)		
Percent Retention	75.6	77.6	53.1		
Percent Change in Thickness	← No change →				
Percent Change in Barcol Hardness	← No change →				

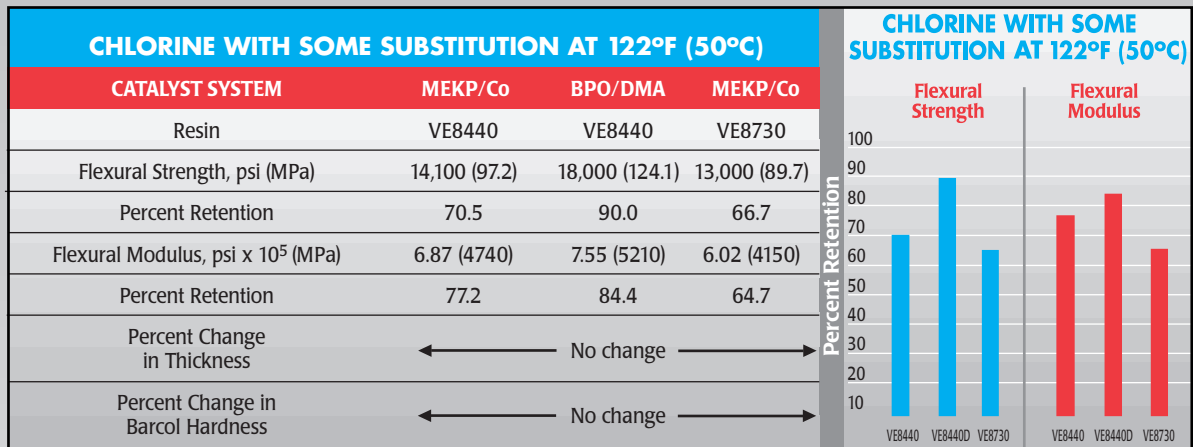
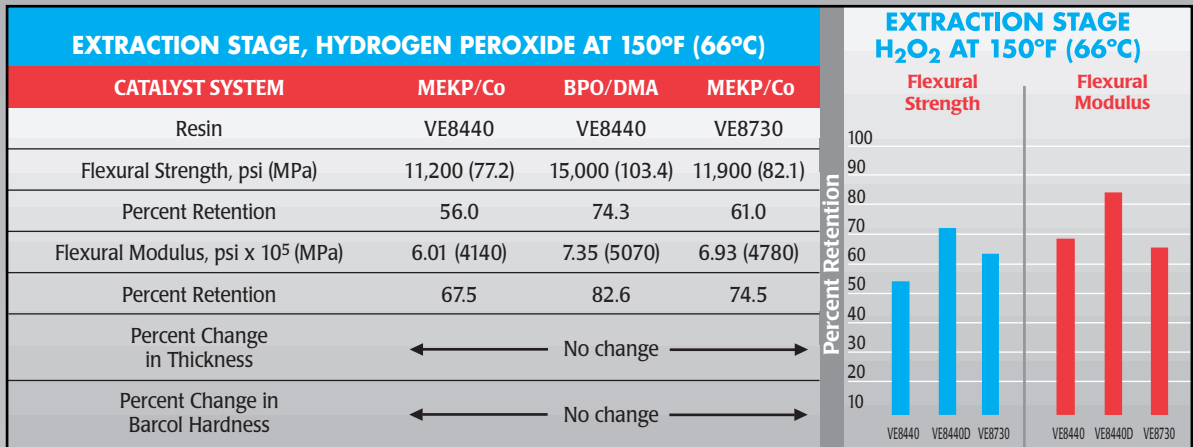


<b>CHLORINE DIOXIDE AT 140°F (60°C)</b>				<b>CHLORINE DIOXIDE AT 140°F (60°C)</b>	
<b>CATALYST SYSTEM</b>	<b>MEKP/Co</b>	<b>BPO/DMA</b>	<b>MEKP/Co</b>	<b>Flexural Strength</b>	<b>Flexural Modulus</b>
Resin	VE8440	VE8440	VE8730		
Flexural Strength, psi (MPa)	14,000 (96.6)	14,100 (97.2)	15,000 (103.4)		
Percent Retention	70.0	70.5	76.9		
Flexural Modulus, psi x 10 <sup>5</sup> (MPa)	6.31 (4340)	6.41 (4420)	7.08 (4880)		
Percent Retention	70.9	72.0	76.1		
Percent Change in Thickness	← No change →				
Percent Change in Barcol Hardness	← No change →				



**“D” Formulations were cured with BPO/DMA.**

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Based on this data, we recommend VE8440 with a BPO/DMA cure system and a synthetic veil as the corrosion barrier for handling this secondary scrubber effluent. The comparison of the data for the VE8440 clearly shows that a BPO/DMA catalyst/promoter system is superior to an MEKP/Co for this environment.

The VE8730-34 (Novolac) performed comparably to the VE8440 in the chlorine dioxide @ 140°F (60°C) but overall, was not as good as the VE8440 BPO/DMA. It was equivalent to the VE8440 MEKP/Co.

For information about Interplastic Corporation's CoREZYN vinyl esters, and all its other resins, gel coats and molding compounds, visit [www.interplastic.com](http://www.interplastic.com). Application information, case histories, technical information and marketing literature can be viewed and/or ordered there.

ResinWizard.com is a searchable database that recommends a resin based on environment/application.

ResinNavigator.org explains the advantages of using CoREZYN vinyl esters and barrier gel coats in marine applications.

## **IMPORTANT NOTICE**

Please keep in mind that the inherent differences in polymer design and composite manufacturing will result in different composite strengths and corrosion resistance. We believe this information is reliable but do not guarantee its accuracy, nor do we assume any liability from its use. Always thoroughly test any application before commercialization. Our recommendations should not be taken as inducements to infringe any patent or violate any law, safety code or insurance regulation.



**INTERPLASTIC CORPORATION**  
Thermoset Resins Division

1225 Willow Lake Blvd., St. Paul, MN 55110-5145  
Phone (651) 481-6860 • FAX (651) 481-9836  
[www.interplastic.com](http://www.interplastic.com)