

VANAX[®] 829

Accelerator

A High Performance Thiadiazole for CPE Compounds



Vanderbilt Chemicals, LLC

A Wholly Owned Subsidiary of R.T. Vanderbilt Holding Company, Inc.

VANAX® 829 Accelerator For CPE Compounds

VANAX 829 is a high performance thiadiazole used to crosslink chlorinated polyethylene (CPE), which possesses good heat and solvent resistance suitable for many hose, tube, and duct applications. CPE can be crosslinked by either a peroxide or thiadiazole. Peroxides develop a tacky surface if exposed to air, as can occur in extrusion applications. The traditional thiadiazole cure (Echo® A) suffers from poor bin storage stability and erratic cure performance.

A study was done to compare the performance of the thiadiazoles **VANAX 829** and Echo® A in CPE. **VANAX 829** provides improved storage stability and high performance. As shown below, the **VANAX 829 / VANAX 808 HP** cure system improves cure state and compression set resistance, with a significant improvement in processing scorch safety time. **VANAX 829** with **VANAX 882-B** further improves bin storage stability and physical properties while providing a stable, high-performance cure system. The **VANAX 829 / VANAX 882-B** cure system provides lesser scorch safety but gives outstanding properties at lower cost.

- **VANAX 829** with **VANAX 882-B** is the overall best cure system for CPE.
- **VANAX 829** with **VANAX 808HP** offers significantly improved processing scorch safety, if slightly lower physical properties are acceptable.

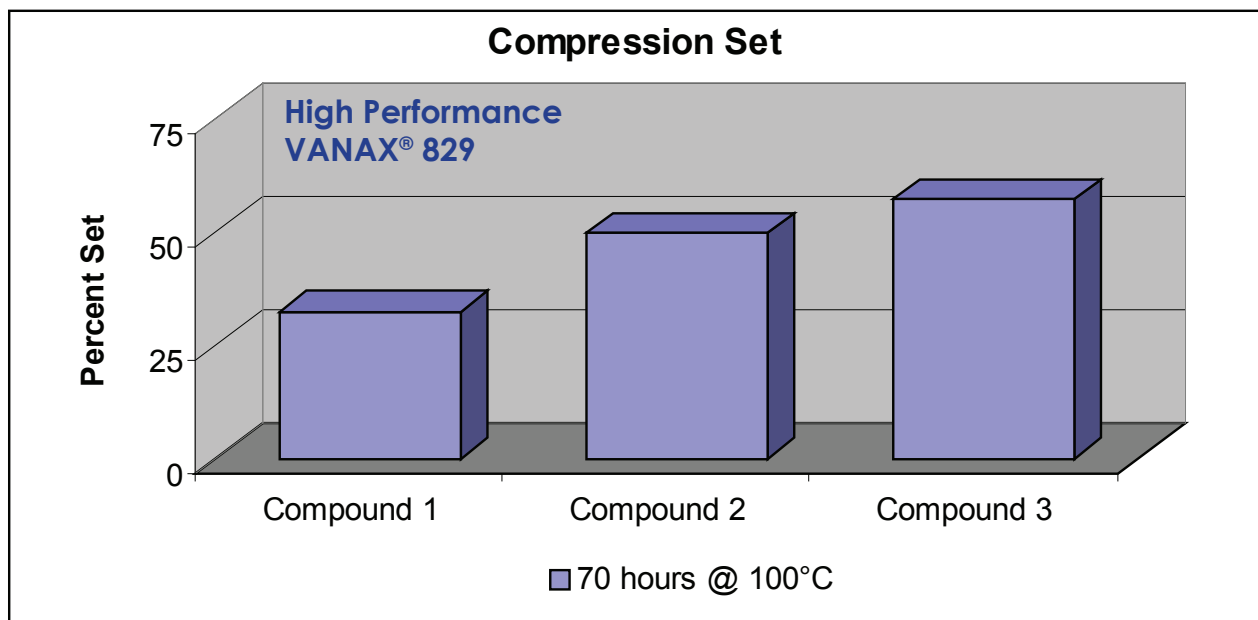


Figure 1: Compression Set Resistance

VANAX® 829 Accelerator in a CPE Compound

Ingredients	Compounds (phr)		
	1	2	3
Chlorinated Polyethylene (CPE)*	100.00	100.00	100.00
Magnesium Oxide	5.00	5.00	5.00
N774 Carbon Black	50.00	50.00	50.00
Aromatic Process Oil	30.00	30.00	30.00
VANAX® 829 Accelerator	2.50	2.50	—
Echo® A	—	—	2.50
VANAX 882-B	1.25	—	—
VANAX 808 HP	—	0.40	0.40
Totals	188.75	187.90	187.90
MOONEY SCORCH @ 121°C			
Minimum Viscosity, mu	42	49	47
t ₅ , minutes	11	57	14
MOONEY SCORCH @ 121°C AFTER 2 WEEKS STORAGE			
Minimum Viscosity, mu	44	59	61
t ₅ , minutes	11	>60	36
Change in Viscosity, mu	+2	+10	+14
MDR @ 171°C, 0.5° Arc			
Min Torque, M _L , dN-m	0.97	1.22	1.15
Max Torque, M _H , dN-m	14.43	11.04	8.55
t ₅ l, minutes	2.06	2.08	1.13
t' 90, minutes	22.76	19.23	17.69
PHYSICAL PROPERTIES <i>Press Cured t'90 + 2 min. @ 171°C</i>			
100% Modulus, MPa	5.0	6.1	4.7
Tensile Strength, MPa	19.9	13.9	14.6
Elongation, %	356	288	360
Hardness, Shore A	75	76	73
OVEN AGED 70 HOURS @ 150°C			
Aged Tensile Strength, MPa	18.2	14.8	15.0
Aged Elongation, %	97	89	118
Aged Durometer, Shore A	93	94	91
COMPRESSION SET – METHOD B - 70 HOURS @ 100°C			
Set, %	33	50	57

*Chlorinated Polyethylene, 36 Cl%, 80 MV

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ECHO is a registered trademark of Arkema, Inc.

Responsible Care is a registered trademark of the American Chemistry Council.

UL is a registered trademark of UL LLC.



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