

vercet ™

ALKYD POLYESTERS

CREATING PERFORMANCE THROUGH CHEMISTRY

Building upon decades spent advancing materials chemistry innovation, NatureWorks offers solutions based on lactides and lactide intermediates that help innovators within the coatings, adhesives, sealants, and elastomers (C.A.S.E.), toner and surfactant industries realize:



Significant, measurable product performance benefits



Move through the R&D process more efficiently and with minimal risk

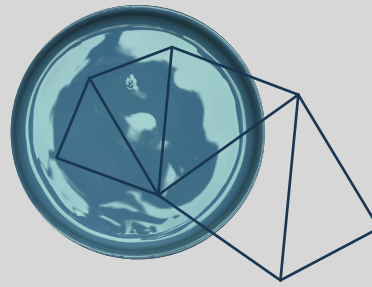


Decrease systems costs via an optimized supply chain

ALKYD POLYESTERS CUSTOM SOLUTIONS FOR COATINGS

Using Vercet lactides as a component in your resins enables unique properties including a new way of creating low VOC solvent-borne coatings for substrates such as wood and metal.

COATINGS		
SUBSTRATES	MARKETS	PERFORMANCE BENEFITS
Wood Metal Anti-corrosion layers Primers	Furniture Flooring Architecture Decorative	Low viscosity alkyds for lower VOC's Improved flexibility Excellent substrate adhesion Superior abrasion resistance Improved ethanol spot resistance Pigmentable Renewably-sourced building block



We achieve this by coupling tunable Vercet™ lactide-based chemistries with the knowledge of scientists and engineers who understand how to dial in the full capabilities of this versatile product line.

PROPERTIES

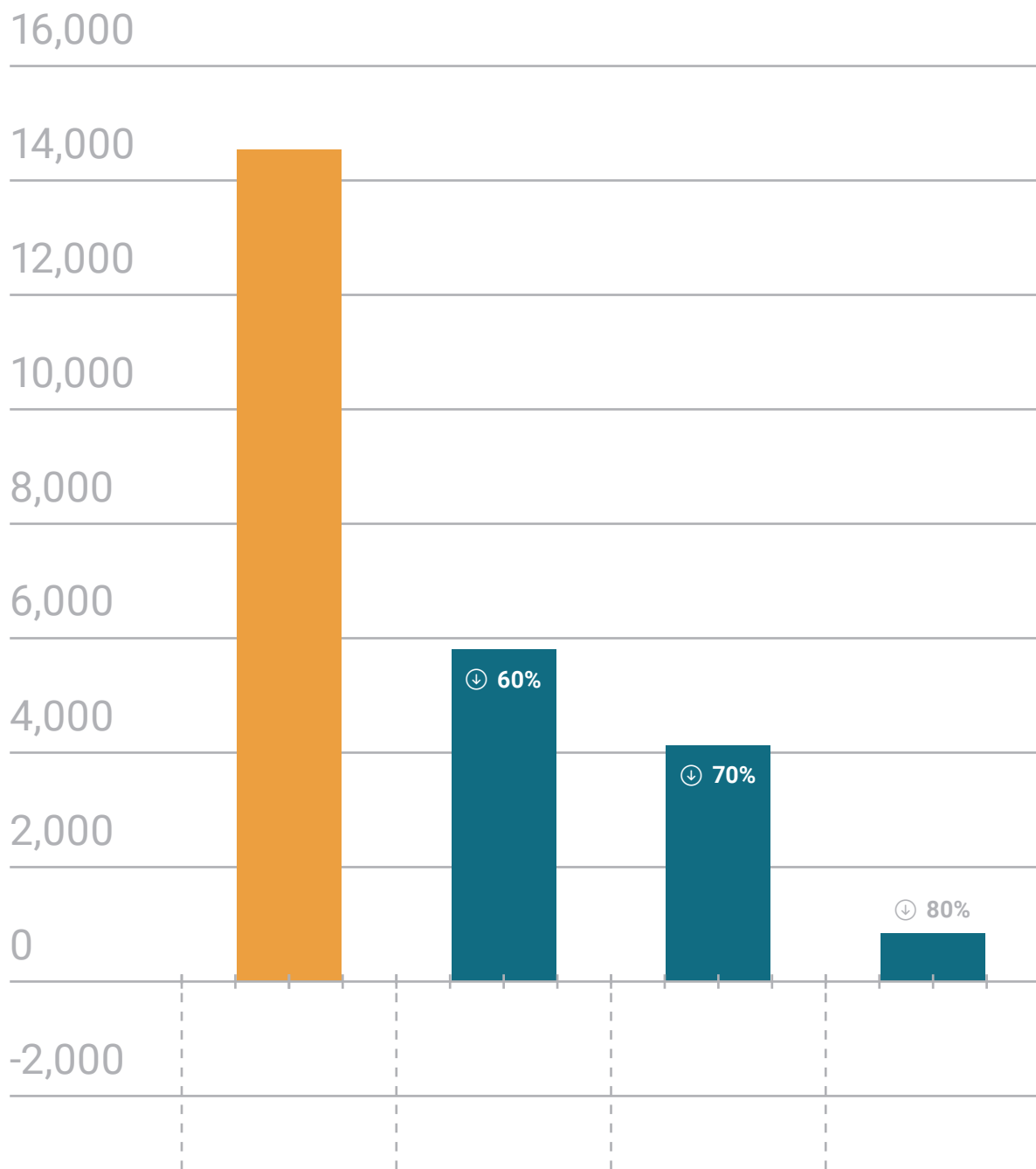
VERCET MEDIUM OIL LENGTH ALKYDS

PROPERTY	CONTROL	25% VERCET LACTIDE
CAP Viscosity [mPa*s, 95°C]	7,720	920
Solution Viscosity [60% Solids, mPa*s]	14,500	80
Cross Hatch Adhesion [0-5, best to worst]	5	0
Mandrel Bend [mm]	4	< 3
Impact 500g [cm, reverse/front]	< 5/10	40/100
Persoz Hardness [30 day cure, glass = 100%]	39	27
24 Hr Water Spot Testing [0-5, best to worst]	0	0
Wt% Phthalic Anhydride	26.7	17.3
Wt% Penterthritol	22.2	16.4
Wt% Tall Oil Fatty Acid	47.5	47.6
Acid Value (mg-KOH/g)	8.1	16.4

Alkyds coated from 60% solids from Varsol 40 / Xylene 80/20 onto clean degreased steel. Tri-metal drier, approximate DFT ~40µm.

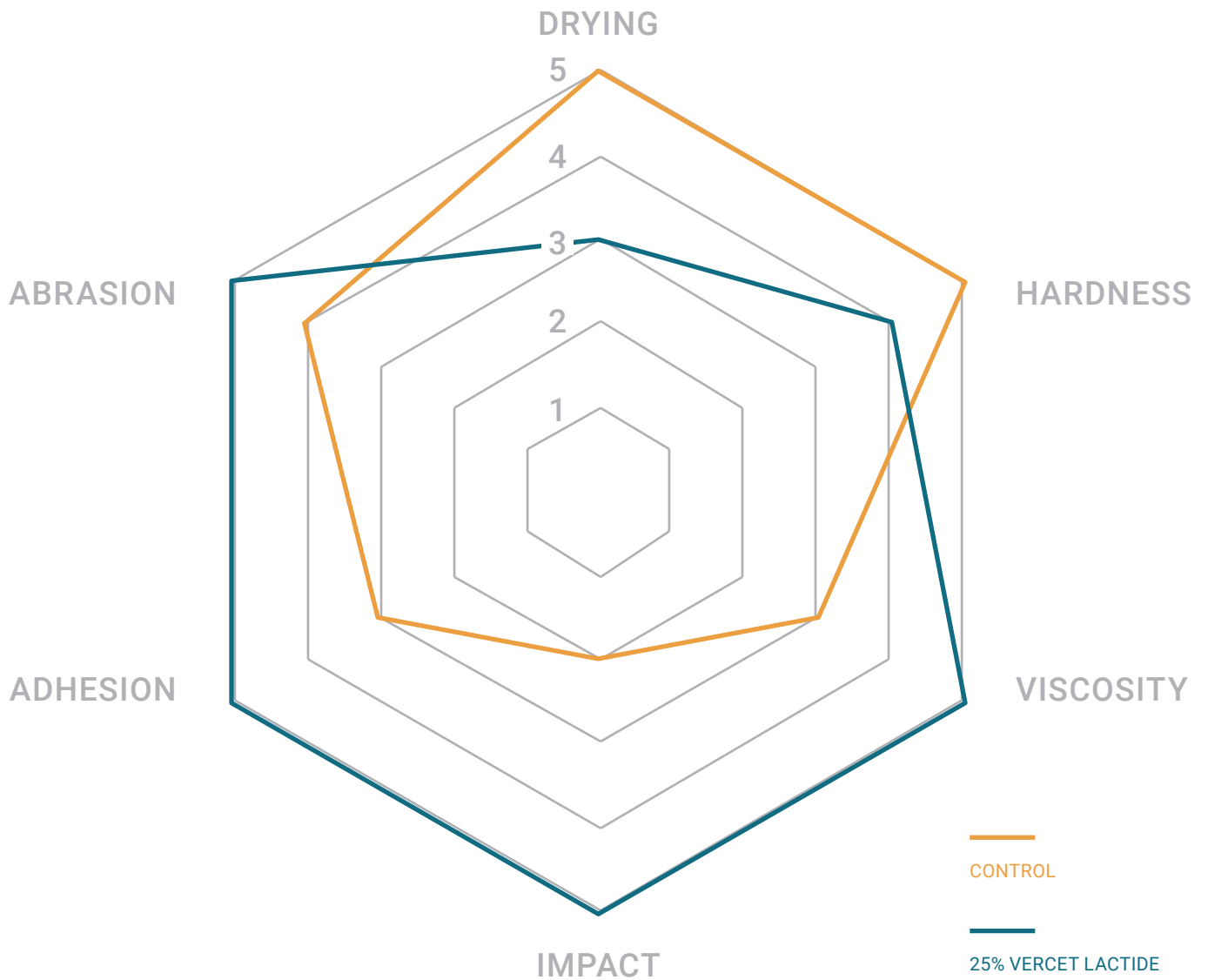
LOW VOC'S FROM REDUCED COATING VISCOSITY

SOLUTION VISCOSITY
[60% solids,
mPa*s]



	CONTROL	7.5% VERCET LACTIDE	15% VERCET LACTIDE	25% VERCET LACTIDE
SOLUTION VISCOSITY	14,500	5,760	4,100	800
Δ REFERENCE		⬇ 60%	⬇ 70%	⬇ 80%

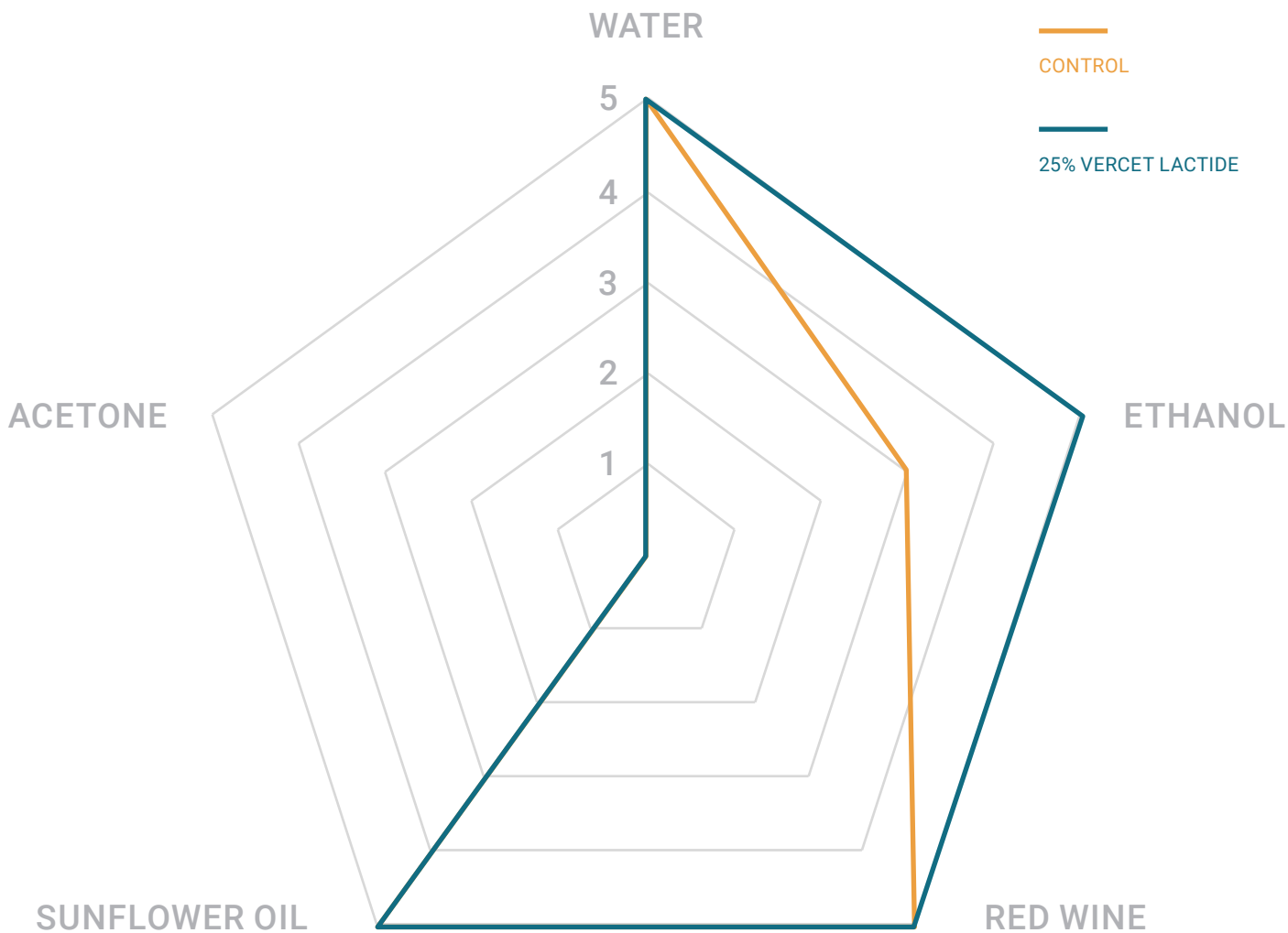
MEASURABLE PERFORMANCE
MECHANICAL PROPERTIES



	CONTROL	25% VERCET LACTIDE
DRYING TIME [THROUGH DRY, 2000g]	1 DAY	7 DAYS
PERSOZ PENDULUM HARDNESS [%] 20 DAYS	38.2	21.5
30 DAYS	38.5	27.1
IMPACT RESISTANCE , REVERSE/FRONT [cm]	< 5/10	40/100
ADHESION TO OAK PULL OFF [MPa]	5.2	6.3
TABER ABRASION [mg-LOSS] ¹ 250	34	23
500	54	50
750	74	69
1000	92	88

1. Cycles, CS-10 wheel type, 1000g, 60 RPM

RESISTANCE TO STAINING & BLISTERING



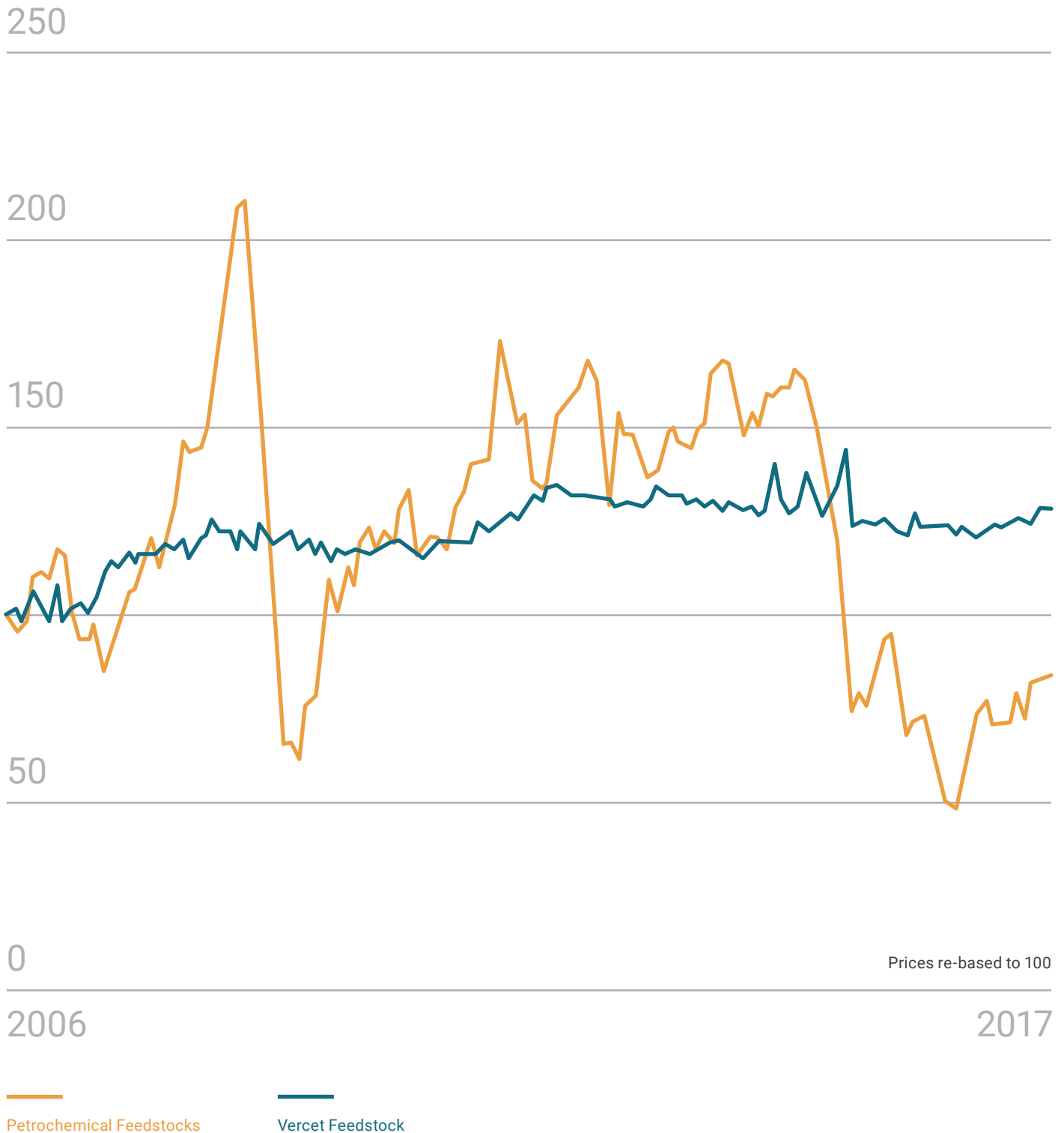
		CONTROL	25% VERCET LACTIDE
WATER	3 HR	0	0
	24 HR	0	0
RED WINE	3 HR	0	0
	24 HR	0	0
SUNFLOWER OIL	3 HR	0	0
	24 HR	0	0
ETHANOL [95%]	3 HR	5	0
	24 HR	5	2
ACETONE	3 HR	5	5
	24 HR	5	5

[0-5, best to worst]

BENIGN BY DESIGN

REDUCING VOLATILITY IN PRICING THROUGH ALTERNATIVE FEEDSTOCKS

Renewably-sourced Vercet lactide-based products bring sensible, elegant, and cost-effective solutions based squarely on the principles of green chemistry to supply chains that, until now, were coupled with traditional fossil-petroleum solutions and their inherent price volatility.





HOW CAN WE HELP YOU?

To learn more about Vercet custom solutions, please contact a member of our Performance Chemicals team.

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