

Substance for Success.



Additive News PVC-AN 1

BYK-P 4100 – A Unique Additive to Improve Processing of PVC Calendering Applications

- highly efficient release properties
- improved spreading coefficient
- free of silicones and waxes
- complies with EU-Dir 2002/72/EC and FDA § 175.300

BYK-P 4100

A Unique Additive to Improve the Processing of PVC Calendering Applications

What does “Improving the Processing of PVC Calendering”, mean?

- better spreading
- better printability
- no or low plate out
- improved release characteristics
- better workability

Additional Benefits of BYK-P 4100:

- no negative influence on intercoat adhesion
- free of silicones and waxes
- FDA § 175.300 and EU-Dir 2002/72/EC compliant

BYK-P 4100 in Comparison to Commonly used Products

	Waxes, Stearates, fatty acid esters	BYK-P 4100
During processing	<ul style="list-style-type: none"> • incompatible with PVC • good release properties 	<ul style="list-style-type: none"> • more compatible with PVC • excellent release properties
Surface after processing	risk of migration, resulting in <ul style="list-style-type: none"> • poor printability • bad intercoat adhesion 	The surface active polar groups of BYK-P 4100 provide a better spreading coefficient resulting in <ul style="list-style-type: none"> • improved printability • no influence on intercoat adhesion

figure 1

Comparison of Mechanism

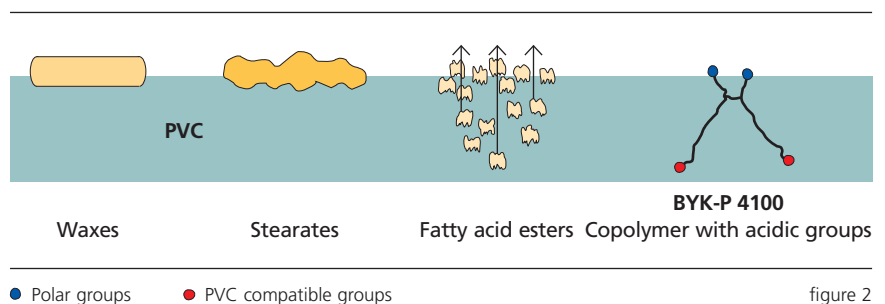
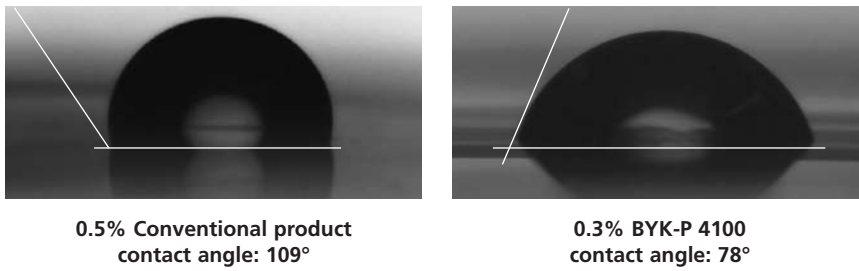


figure 2

A good Spreading gives an Excellent Printability when Aqueous Printing Inks are used.



0.5% Conventional product
contact angle: 109°

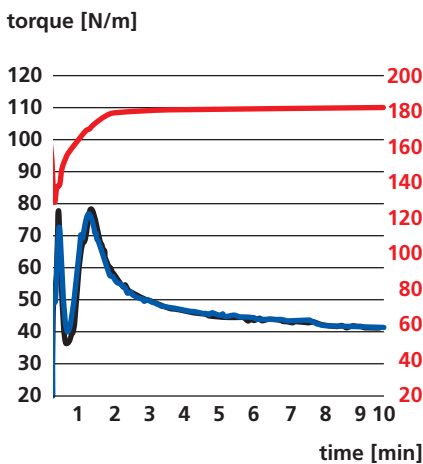
0.3% BYK-P 4100
contact angle: 78°

figure 3

BYK-P 4100 is Highly Efficient

Even if the BYK-P 4100 dosage is reduced drastically over conventional products (like waxes, stearates, fatty acid esters) the melt flow of the PVC compound is stable.

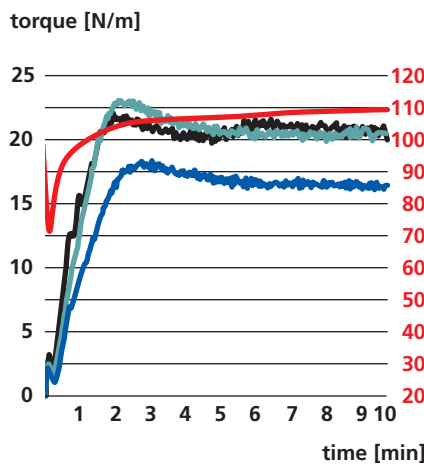
Rigid PVC



■ Conventional fatty acid ester 0.2 phr (= 100%)
■ BYK-P 4100 0.1 phr (= 50%)
■ Sample Temperature in °C

figure 4

Plastisized, Filled PVC



■ Conventional PE-wax/stearate 2.5 phr (= 100%)
■ BYK-P 4100 0.6 phr (= 25%)
■ BYK-P 4100 2.5 phr
■ Sample Temperature in °C

figure 5

How to start when using BYK-P 4100

BYK-P 4100 is used in dosages between 0.1% and 1.0%. In filled or pigmented formulations up to 2.0%, depending on the effect that is desired.

Release 0.1% ————— Improved spreading and printability ————— Anti-blocking >1.0%

In filled or pigmented formulations up to 2.0%!

Recommendations for the first trials

- calculate the complete amount of release and processing agents (waxes, fatty acid esters) and divide this sum by two.
- depending on the first results the additive dosage may even be reduced!
- although the surface tension not always shows an increase there will be an improvement in spreading because BYK-P 4100 influences the polarity of the surface.

Products and Applications

BYK Additives

Additives are used during the production of coatings, printing inks and plastics to optimize the production process and to improve the quality of the final product.

Product Range Additives

- Additives to improve surface slip, leveling and substrate wetting
- Adhesion promoters
- Defoamers and air release agents
- Foam stabilizers
- Processing additives
- Rheological additives
- UV-absorbers
- Viscosity depressants
- Waxes
- Wetting and dispersing additives for pigments and extenders

Application Areas

- Ambient curing resins (FRP)
- Architectural coatings
- Automotive OEM
- Automotive refinishes
- Can coatings
- Coil coatings
- Color masterbatches
- Industrial coatings
- Leather coatings
- Marine paints
- Molding compounds
- Paper coatings
- Pigment concentrates
- Polyurethane foams
- Powder coatings
- Printing inks
- Protective coatings
- PVC plastisols
- Thermoplastics
- Wood and furniture coatings

BYK-Chemie GmbH

P.O. Box 10 02 45
46462 Wesel
Germany
Tel +49 281 670-0
Fax +49 281 65735

info@byk.com

www.byk.com/additives

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Lausitzer Strasse 8
82538 Geretsried
Germany
Tel +49 8171 3493-0
+49 800 427-3637
Fax +49 8171 3493-140

info.byk.gardner@altana.com

www.byk.com/instruments

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