

Acrylic Additives for Vinyl Resilient Flooring



Vinyl Resilient Flooring applications

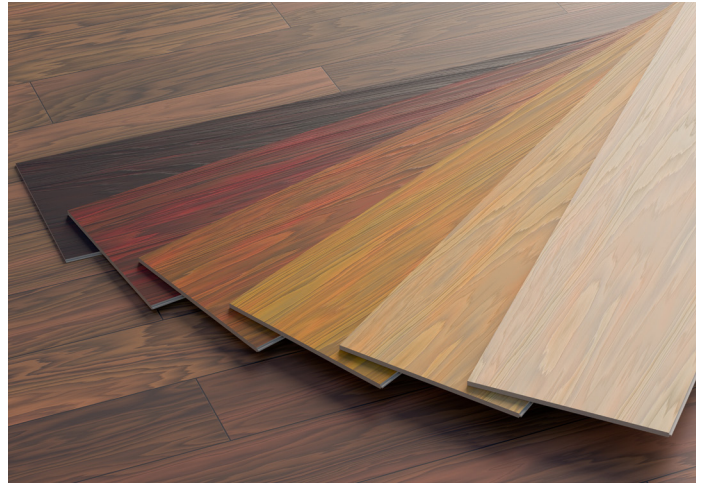
Consumers, retailers and building contractors continually seek new solutions to improve the performance, durability, and value of vinyl resilient flooring. In this growing market segment, the offering needs to be easy to install, low maintenance, durable, cost effective and aesthetically pleasing.

Vinyl resilient flooring products can be split into two families:

Homogeneous - Typically a vinyl sheet with one PVC layer. There are limited possibilities for design and color.

Heterogeneous – Constructed of different layers. The combination of layers allows wide ranging designs, quality, and performance in terms of dimensional stability, wear protection, acoustic insulation, thermal insulation, decorative options, etc.

This literature will focus on additives for the heterogeneous family of vinyl resilient flooring.

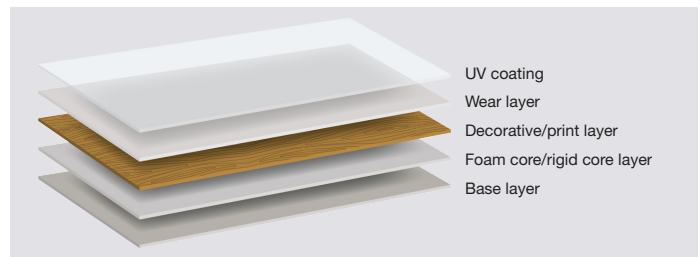


Vinyl Resilient Flooring technologies

Vinyl films and sheets are mainly produced on calendering and extrusion lines, as well as coating lines. Multiple layers can be laminated together under heat and pressure, in combination with a design, a printed film layer and a transparent PVC wear layer.

Luxury Vinyl Tile (LVT)

Installation of LVT flooring requires careful preparation of the subfloor to avoid the finished flooring taking on the shape of any imperfections. LVT flooring can be installed by gluing or by solid-locking.



Stone Plastic Composite (SPC)

When a combination of high rigidity and dimensional stability is required, SPC flooring is the most appropriate choice. SPC flooring can be installed relatively easily on uneven subfloor by clicking into place, without glue.

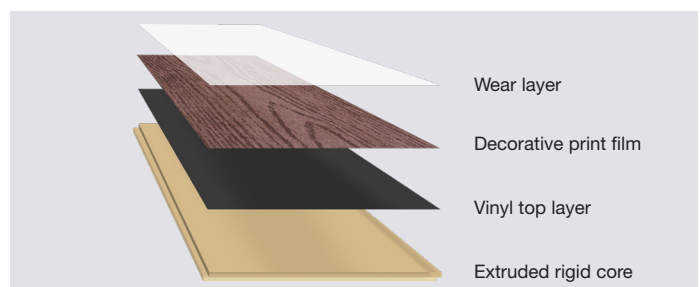


Waterproof Core (WPC)*

Widely used in residential areas, WPC flooring, provides good dimensional stability with very high scratch resistance. Layers can be bonded together through heat and pressure, or with glue.

No floor preparation is required. WPC flooring can be easily installed on uneven subfloors by clicking into place without glue.

* previously named Wood Plastic Composite flooring



Innovative solutions for improved manufacturing and product performance of Vinyl Resilient Flooring

PARALOID™ and SURECEL™ Acrylic Processing Aids, along with PARALOID™ Polymeric Lubricants and PARALOID™ Acrylic Impact Modifiers from Dow Plastics Additives offer innovative yet cost effective solutions for the performance needs of all vinyl resilient flooring applications and technologies.

A combination of a high molecular weight Processing Aid, such as PARALOID™ K-125 ER and a Polymeric Lubricant, such as PARALOID™ K-175 ER, may be used in the different PVC based layers, for LVT, SPC and WPC products and contributes to excellent processability of PVC formulations with high filler content, and where an improved resistance of the melt is required.

PARALOID™ K-125 ER Processing Aid improves the filler dispersion in the PVC matrix, leading to an enhanced melt homogeneity. Melt strength and melt elongation are also significantly improved during PVC processing.

PARALOID™ K-185 ER Polymeric Lubricant, offers outstanding performance in PVC based layers with high filler content. It will prevent the melt sticking on hot metal surfaces of the equipment, even at high temperatures, whilst providing a good surface finish.

PARALOID™ K-175 ER Polymeric Lubricant enables excellent hot metal release during PVC processing.

Typically, flooring produced by SPC and WPC technologies, requires improved flexibility of the clip parts. PARALOID™ KM-376L Impact Modifier contributes to the impact strength necessary in a high-quality end product.

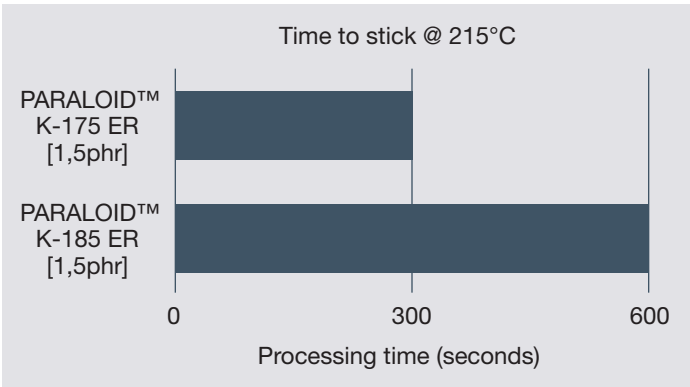
SURECEL™ 466 ER ultra high molecular weight Acrylic Processing Aid, significantly improves melt strength and melt elongation, as well as increases melt elasticity, during PVC processing of foamed PVC based backing layers, allowing a high expansion ratio (low foam density) and homogeneous fine cell structure to be reached for optimum properties of the foamed layers.

Efficiency; up to 30% more efficient
Optimized cost performance PVC formulation

Anti-sticking performance during processing @ 190°C		
	0 seconds	900 seconds
PARALOID™ K-175 ER [0,6phr]	✓	✓
PARALOID™ K-185 ER [0,4phr]	✓	✓

These are typical properties and should not be construed as specifications

Effectiveness; up to twice as effective
Facilitate processing at high temperature



Which additives for your Vinyl Resilient Flooring application?

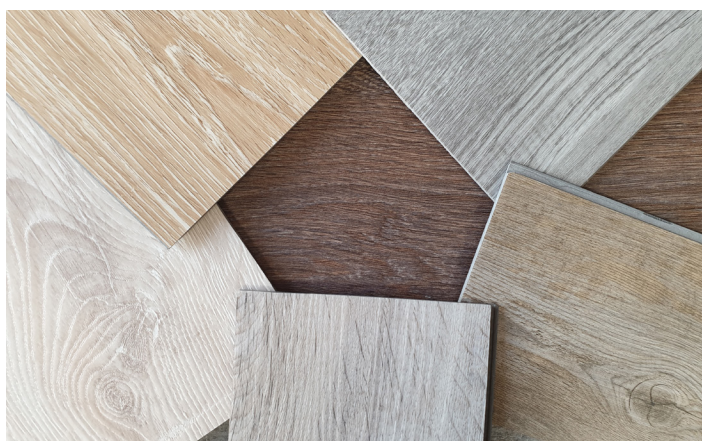
Dow Plastics Additives offers innovative solutions for all Vinyl Resilient Flooring technologies.

A combination of different Dow additives exhibits excellent yet cost-effective performance during processing and end-use.

Acrylic processing aid	Key features	Key benefits
PARALOID™ K-125 ER High Mw	<ul style="list-style-type: none">Improves dispersion and melt homogeneityIncrease melt strength and melt elongationIncreases melt elasticityReduces melt fracture	<ul style="list-style-type: none">Extends the processing windowProvides excellent balance of quality and performance
SURECEL™ 466 ER Ultra high Mw	As above and also, Improved cell structure of foamed PVC layers	<ul style="list-style-type: none">Improves surface finish of foamed PVC layers with high filler contentContributes to weight reduction
Polymeric lubricant		
PARALOID™ K-175 ER	<ul style="list-style-type: none">Provides excellent hot metal release	<ul style="list-style-type: none">Extends the processing windowImproves surface finish of foamed PVC layers with high filler content
PARALOID™ K-185 ER	<ul style="list-style-type: none">Provides outstanding hot metal release	
Acrylic impact modifier		
PARALOID™ KM-376L	<ul style="list-style-type: none">Provides excellent impact strength	<ul style="list-style-type: none">Allows excellent flexibility for clip parts

These are typical properties and should not be construed as specifications

Note: except otherwise expressly specified, the graph and tables presented in this document originate from internal studies conducted by Dow in 2018.



About Dow

Dow (NYSE: DOW) combines one of the broadest technology sets in the industry with asset integration, focused innovation and global scale to achieve profitable growth and become the most innovative, customer centric, inclusive and sustainable materials science company. Dow's portfolio of performance materials, industrial intermediates and plastics businesses delivers a broad range of differentiated science-based products and solutions for our customers in high-growth segments, such as packaging, infrastructure and consumer care. Dow operates 113 manufacturing sites in 31 countries and employs approximately 37,000 people. Dow delivered pro forma sales of approximately \$50 billion in 2018. References to Dow or the Company mean Dow Inc. and its subsidiaries. For more information, please visit www.dow.com or follow [@DowNewsroom](https://twitter.com/DowNewsroom) on Twitter.

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