Technical Data Sheet

PARALOID™ K-125 Processing Aid

Description

PARALOID™ K-125 Processing Aid is a readily dispersible general purpose acrylic processing aid for PVC that offers outstanding efficiency for improving the processing characteristics of non-foamed PVC compounds. When used in rigid vinyl applications, the processing behavior is markedly improved with no adverse effects on such properties as impact strength, thermal stability, tensile properties, or DTUFL/Vicat properties.

PARALOID™ K-125 improves important processing characteristics, such as melt strength, faster fusion, and promotion of melt homogeneity. This results in reduced surging, reduced melt fraction, improved surface finish, and improved dimensional control of the finished product, even in highly filled systems. For sheet applications, PARALOID™ K-125 enhances the extensibility and deep draw characteristics for post-extrusion thermoforming.

Applications

PARALOID™ K-125 Processing Aid is recommended for all rigid PVC extrusion applications, such as sheet, pipe, and profile, including fence, window, and siding, requiring basic fusion promotion and enhanced melt strength, without excessive die swell. It is recommended for calendared film and sheet PVC applications, particularly where excellent dispersion and post-melt processing thermoforming, including deep draw, are important. PARALOID™ K-125 Processing Aid is well suited for highly filled luxury vinyl tile applications, both semi-rigid and solid core types.

For PVC films for packaging applications, PARALOID™ K-125 Processing Aid complies with U.S. Food and Drug Administration (FDA) regulations 21CFR177.1010 and 21CFR178.3790.

Regional Product availability

- North America
- Latin America

Typical Properties

	PARALOID™ K-125 Processing Aid
Physical appearance	Free Flowing White Powder
Bulk density aerated (g/cm^3)	0.40 – 0.46
Glass Transition Temperature	~90 °C
Volatiles (% max)	< 1%

[1] Typical properties, not necessarily specifications

Key attributes

- Excellent dispersion in rigid PVC compounds, particularly critical for applications, such as calendared films, limiting gels and fish eyes.
- Good clarity for clear PVC applications, although for the very highest clarity applications, PARALOID™ K-120ND or PARALOID™ K-130D Processing Aids, may be best suited.
- Shortened fusion time and promotion of an extremely homogeneous melt for ease of processing, particularly useful for highly filled systems.
- Excellent melt strength, with modest viscosity contribution suitable for complex die extrusions, requiring excellent part dimension control. Enhanced melt strength even in semi-rigid and flexible systems.
- Enhanced extensibility and deep draw characteristics for post-extrusion thermoforming
- Limits melt fracture, promoting smooth glossy surfaces, free of surface imperfections.

Processing Efficiency, without negative effects on physical property

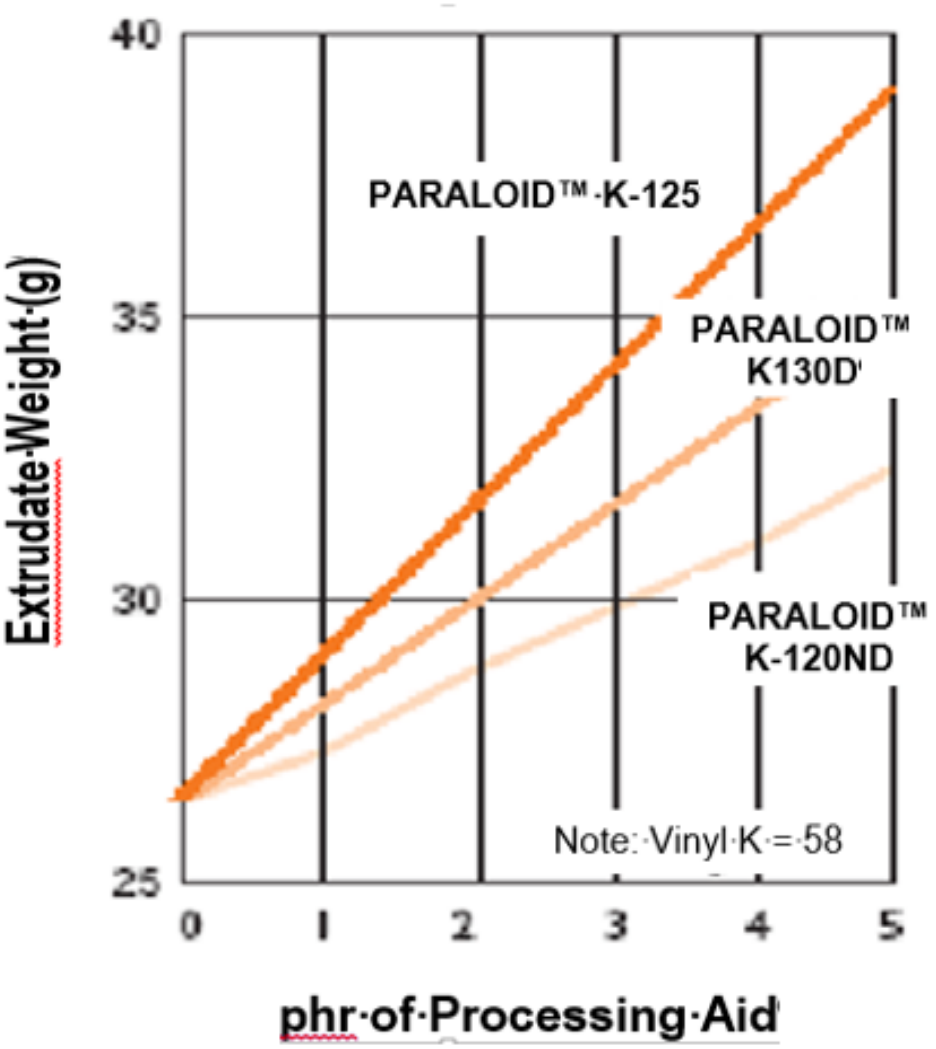
Testing in a typical siding substrate formulation, but without any impact modifer included.

	No Processing Aid	0.8 phr PARALOID™ K-125
Tensile Properties		
Max. (psi)	7290	7220
Modulus (psi)	362000	350000
Elongation (%)	>150	≥150
Izod Impact @ 23°C		
Ft-lbs/inch	1.7	1.8
Ductility (%)	0	0
Stdd. Dev.	0.14	0.23
DTUFL, °C at 264 psi	69	68
Haake Thermal Stability		
Equilibrium Torque (m·g)	1210	1279
Equilibrium Temperature (°C)	213	213
Dynamic Stability (min:sec)	13:30	13:00
Brabender Mixing Bowl Evaluation		
190°C/45 rpm/60 gm		
Fusion Time (min:sec)	4:14	3:26
Fusion Torque (m·g)	1636	2093
Fusion Torque (m·g)	1584	1787
Equilibrium Temp (°C)	194	196

High Efficiency in a PVC Packaging Film Formulation

In a circular rod die extrusion, the weight of the extrudate, in a “time to floor test”, i.e. when the extrudate tip reaches the floor, is a known proxy for the relative melt strength of a formulated PVC system.

Formulations for thermoformed film packaging applications benefit from the efficiency of PARALOID™ K-125 Processing Aid. It not only provides fast fusion, for short time to achieve a smooth rolling back, but also provides exceptional hot melt strength at relatively low loading levels, compared to other processing aids for film applications. This aids in downstream deep draw thermoforming of the film/sheet for a wide variety of end uses, including blister packs and trays.



Improve the processing of semi-rigid and flexible PVC systems

In flexible sheet applications and semi-rigid vinyl applications, such as some luxury vinyl tile base layer formulations, PARALOID™ K-125 Processing Aid is an excellent processing aid choice.

In flexible sheet applications it disperses well, despite the lower shear in flexible systems, while providing enhanced melt strength. In highly filled semi-rigid applications, it provides improved melt strength and homogeneity critical for incorporating high levels of inorganic filler.

Although its ability to promote fusion is less apparent in formulations with plasticizer, the table below shows the improvements in melt properties, elasticity, and appearance when PARALOID™ K-125 is used.

PARALOID™ K-125 Processing Aid For Semi-Rigid and Flexible Applications

	Semi-Rigid		Flexible	
DIOCTYL PHTHALATE	25	25	54	54
PARALOID™ K-125, %	0	5	0	5
Rolling Bank [1]	F-	G+	F-	G
Hot Strength [1]	F-	G+	F	G
Release from Mill [1]	G	G+	G	G
Appearance [2]				
10 mil film	5	1+	1+	1
40 mil sheet	10	3+	6	2

[1]Ratings: P=Poor, F=Fair, G=Good
[2]Ratings: 1=Smooth Surface, No Imperfections vs. 10=Badly rippled

Product Packaging

The standard package is either a unitized pallet of 15-20 kg bags or 400-900 kg super sacks/big bags/FIBC bags.

Please consult a Dow representative for specific package availability for this product.

Quality management system

The Dow Chemical Company (Dow) and its subsidiaries have implemented a comprehensive quality management system pursuant to Good Manufacturing Practices (GMP) and various quality management standards including ISO 9001. An overview of **The Dow Quality Management System Manual** can be obtained at the following Internet web site – http://www.dow.com/en-us/about-dow/our-company/beliefs-and-culture/quality-culture. As part of that system, the Dow Plastics Additives business maintain ISO 9001 registration for most of our manufacturing plants. A copy of these certificates available upon request.

Storage and handling precautions

Store unopened in original packaging at ambient temperature. If material is opened, it should not be left exposed and should be used within one month. When stored correctly in the original packaging, the shelf life is 3 years from date of manufacture.

Before using this product, consult the Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage. Contact Dow for copies of the SDS and for more information on this product. Information contained in a TDS document cannot substitute a SDS.

Disposal considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

Medical Applications Restrictions

Dow prohibits sale into certain medical applications. Please check with Dow if you believe your application could be in violation of this policy.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. The customer is solely responsible for determining the suitability of the Dow product for the uses contemplated by customer. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow and available online at www.dow.com.

Regulatory Information

If your application includes a sensitive application such as food contact or drinking water requirements or if you need other regulatory information, please contact your local Dow representative.

Contact information:

If you should have any questions regarding this notice, please contact your local Dow Representative or www.dow.com/contact