Technical Data Sheet

PARALOID™ K-175 ER Polymeric Lubricant

Description

PARALOID™ K-175 ER is an acrylic polymer, used as a Polymeric Lubricant in PVC formulations. As a market reference, it is a highly efficient polymeric lubricant for PVC formulations providing excellent processability and excellent hot metal release performance. Due to its external lubricant function, PARALOID™ K-175 ER Polymeric Lubricant prevents the melt sticking from the hot metal surfaces of equipment without providing plate-out. PARALOID™ K-175 ER Polymeric Lubricant can be used in combination with acrylic Processing Aids.

Applications

PARALOID™ K-175 ER Polymeric Lubricant can be used in a wide range of PVC formulation and applications, such as calendering of films, extrusion of foamed PVC sheets, rigid profiles and injection-molding of fittings.

Recommended addition level depends on PVC formulation and targeted applications.

Regional Product availability

- Europe Middle East Africa India

Typical properties

PARALOID™ K-175 ER Polymeric Lubricant is a free-flowing powder.

Physical appearance	White powder
Bulk density aerated (g/cm^3)	0.38-0.46
Volatiles (% max)	1.0
Powder flowability (funnel diameter, mm)	10
Fines level, through 45 micron (%)	23

Key attributes

- **Provide excellent anti-sticking effect during PVC processing**
- **Improve processing of PVC formulation**
- **Improve process thermal stability of PVC formulation**

Rheology and Processing

Due to its external lubricant function, PARALOID™ K-175 ER Polymeric Lubricant tends to delay gelation/fusion of PVC formulation. However, if combined with PARALOID™ acrylic Processing Aid and/or PARALOID™ Impact Modifier, gelation/fusion process is not affected.

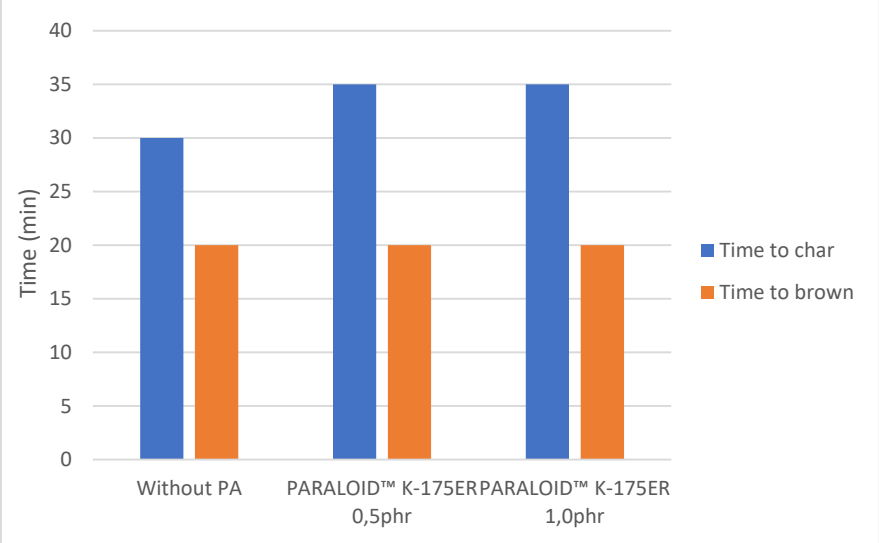
Hot metal release performance

The following tests were carried out on lab two-roll mill equipment in PVC formulation without any internal or external lubricants.

Product	**Loading (phr)**	**Anti-sticking performance at 190°C**		
Processing time (s)		t=0	t=600	t=900
PARALOID™ K-175 ER	0.4	Sticking	Not processable	
	0.5	Sticking	Not processable	
	0.6	No sticking	No sticking	No sticking

Dynamic heat stability test

The following test was performed on a lab two-roll mill equipment, at 190°C



Optical properties

Thanks to its refractive index very close to PVC, PARALOID™ K-175 ER Polymeric Lubricant does not affect clarity or high stress / crease whitening resistance of PVC formulation.

	Without PA	PARALOID™ K-175 ER 1.0 phr
Light transmission (%)	86.5	86.6
Haze (%)	3.7	3.1
Crease whitening resistance	0-1	0-1

Crease whitening resistance rating 0-10 where:

- 0 = no crease whitening
- 10 = high crease whitening

Transparency measurement was done on 3 mm plates using a Hunterlab spectrometer.

Crease whitening resistance test was performed on 3 mm plates.

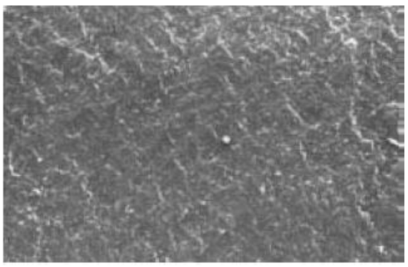
Performance in end-use products

PARALOID™ K-175 ER Polymeric Lubricant offers several attractive benefits relating to the finished product, including surface quality, clarity and gloss. Its excellent dispersion performance also contributes to the appearance of the finished product.

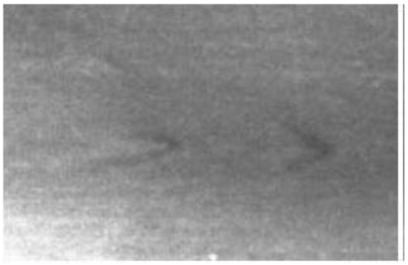
The processing aid effect of PARALOID™ K-175 ER Polymeric Lubricant is clearly demonstrated by the improvement in melt homogeneity, which results in better surface finish.

Melt fracture

Without PARALOID™ K-175 ER (x100)



With PARALOID™ K-175 ER, 1phr (x100)



Product Packaging

The standard package is either a unitized pallet of 20-25 kg bags or 500-900 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 will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- Long-term or permanent contact with internal body fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours

- Use in cardiac prosthetic devices regardless of the length of time involved ("cardiac prosthetic devices" include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass-assisted devices)

- Use as a critical component in medical devices that support or sustain human life

- Use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction

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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:

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