

DANTHANE® I 25K-EL-COMPOUND

DESCRIPTION

DANTHANE® 125K-EL-Compound is a polyurethane elastomer based on polyester. This compound is fitted electroconductive with carbon black. DANTHANE® 125K-EL-Compound is processed by melt calender, flat film extrusion and injection moulding. This special TPU is used for the production of coatings for films, textiles, electroconductive shoe components and divers injection moulding parts.

PRODUCT CHARACTERISTIC

	Values	Method
Aspect	Black coloured pearl granule (colour RAL 9005)	
Density	1,20 g/cm ³ at 20 °C	DIN 53.479
MFR	50 – 70 g/10 min/220 °C/10,0	
Shore hardness	85 A	DIN 53.505
Melting range	155 – 165 °C	KOFLER
Softening range	130 – 145 °C	KOFLER
Hydrolysis resistance	Good	
Chemical resistance	Good resistant against oil, fuel, ester, ketone and hydrogen chloride.	

MECHANICAL VALUES

	Values	Method
Tear strength	30 MPa	DIN 53.504
Elongation at break	500 %	DIN 53.504
Tear strength	110 kN/m	DIN 53.515
Abrasion loss	25 mm ³	DIN 53.516
Electrical conductivity	120.00 – 190.00 KΩ	

CHARACTERISTICS OF THE FILMS PRODUCED WITH DANTHANE® 125K-EL-COMPOUND

	Values	Method
Aspects of the films	Black, elastic	
Softening range	130 - 140 °C	KOFLER
Film processing temperature	140 - 240 °C	
Dry cleaning resistance	Very good	
Washing resistance	Very good	
Hydrolysis- and microbe resistance	Good	

APPLICATION

DANTHANE® 125K-EL-Compound is a special TPU type for calendaring and extrusion of electroconductive or antistatic TPU-foils and TPU-films. The direct extrusion of coating films on textiles or other supporting materials is possible. Typical applications are the processing of membrane foils and electroconductive decor foils. Furthermore, this special compound can be used for the production of electroconductive shoe components. With DANTHANE® 125K-EL-Compound it can be also produced films for flexible hoses as well as coatings for cables. It can also be used for the coating of conveyer belts and flat belts.

PROCESSING

For optimum results DANTHANE® 125K-EL-Compound has to be dried before processing. The pre-drying can be made in circulation dryers, vacuum dryers or hot air tunnel dryers. The drying temperature is mentioned under point 6.

Good processing properties at the melt calendaring can be reached if the granules have been pre-plasticated by means of an extruder. To reach optimum processing characteristics we recommend the following extruder characteristics:

1. L/D-ratio between 25:1 and 30:1.
2. The extruder screw must have 3 zones and a compression ratio between 2:1 and 3:1 (usually, the screws that are used for poly-ethylene extrusion give good results).
3. The compression section of the screw should rise slowly. In the case of a short compression section, a damage of the granule can be possible.
4. The speed of the extruder should be low (12 to 60 rpm., depending on its diameter) so as to avoid material degradation due to shearing.
5. The used filters should be disks with holes of 1,5 to 5 mm (depending on the screw and the die), and screen packs (the no. of meshes/cm² depends on the produced end product). A sufficient pressure buildup must be given.
6. To reach optimal results a pre-drying of the product in a corresponding granule dryer is advisable. Pre-drying of DANTHANE® 125K-EL-Compound should be made for 1 to 2 hours at 100 – 115 °C.
7. In picture no. 1 you can see the temperature profile at the flat film extrusion.

Extrusion:

We recommend the following extruder setting for extrusion:

Feed zone:	170 – 180 °C
Compression zone:	180 – 190 °C
Metering zone:	190 – 200 °C
Die:	195 – 200 °C

Injection moulding:

We recommend the following settings for injection moulding:

Injection moulding machine:	30 t
Screw diameter:	26 mm
L/D ration:	23
Max. hydraulic pressure:	210 bar
Injection mould:	
Injection moulding tool:	120x120x2 mm

Processing conditions for injection moulding:

Feed zone:	195 °C
Compression zone:	200 °C
Metering zone:	210 °C
Die:	210 °C
Injection pressure:	80-110 bar
Injection speed:	3,1 sec.
Mould filling pressure:	70 bar
Mould filling time:	15 sec.
Injection moulding temperature	32 °C
Cooling time:	15 sec.
Screw speed:	75-80 rpm

COMPATIBILITY

DANTHANE® 125K-EL-Compound can be compounded and mixed with flame resistant and demoulding additives. Precaution has to be taken to get a homogenous mixture. Mixtures with the harder type DANTHANE® 127K-EL-Compound (shore hardness 92A) is possible with each weight ratio.

STORAGE

If stored correct, cool and dry in its original packaging, the storage time of the product is at least 6 months. The product has to be protected against humidity.

PRODUCT SAFETY

DANTHANE® 125K-EL-Compound is under normal hygienic processing conditions a harmless material. If larger quantities are being processed in the melt, vapour extraction must be ensured.

* For further information we refer to our Safety Data Sheet

PHYSIOLOGICAL CHARACTERISTICS

DANTHANE® 125K-EL-Compound is in its chemical structure according to the recommendation of the BGA (Bundesgesundheitsamt) and FDA (FOOD and DRUG-ADMINISTRATION) for the application and production of food and utensils. The rules and recommendations must be kept.

RECYCLING

Clean and uncontaminated waste of DANTHANE® 125K-EL-Compound, which was separated from the substrate, may be grinded and reused as grinding material or may be added to new TPU material.

PACKAGING


25 kg PE aluminium moisture proof multilayer bags on pallets of 500 kg. Additional PE-lined cardboard bigbags of 700 kg net weight are available.




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