

Technical data sheet

Product name: Terrasol[®] TC 253
Date of issue: 30 August 2021

Version: 1.1

Designation of product, preparation and manufacturer

Trade name: Terrasol[®] TC 253
Use of product: Thermoplastic polyvinyl alcohol, suitable for manufacture of water soluble shaped articles by extrusion.
Manufacturer: FKUR Kunststoff GmbH
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Physical properties

Melt flow rate (190 °C/2.16 kg)	1.3	[g/10 min]	ISO 1133
Moisture Content	max. 1.1	[%]	
Melting temperature	180	[°C]	ISO 3146-C
Density	1.25	[g/cm ³]	ISO 1183
Bulk density	706	[kg/m ³]	ISO 60
Pellet size	3	[mm]	ISO 2591

The figures should be regarded as guide values only. Under certain conditions the properties can be influenced to a significant extent by the processing conditions.

Processing and Handling Information

General

Terrasol[®] is a water soluble thermoplastic polyvinyl alcohol (PVOH). As it is a moisture sensitive material it should be kept in its original packaging.

Drying

Terrasol[®] does not require drying before use, however it is best to keep the bags sealed until it is used and reseal the bags after use to prevent moisture ingress.

Storage

Terrasol[®] pellets are packed in aluminium bags. It should be kept in the packaging it was supplied, if repacked then this should ideally be in an aluminium foil bag or thick PE bag and be sealed airtight. Store between 10-35°C and 30-80% relative humidity. Do not store in freezing conditions. It remains stable for at least 12 months in its original container provided it is stored correctly.

Once the packaging is opened the material absorbs moisture and therefore should be processed immediately from previously unopened original containers.

Storage time of the finished products made of Terrasol[®] depends on processing parameters and of climate conditions in the respective area. Because of these essential and complex interacting parameters, FKUR Kunststoff GmbH cannot give any shelf life guarantees for finished products. Please notice that the conditions mentioned above depend on experience of our customers. Each customer should execute individual storage tests according to product specifications and storage requirements.

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Processing conditions for blown film extrusion

Machine equipment:	Standard extruder for the processing of thermoplastic polyolefins. Ideally the extruder screw should be a 28:1 or 30:1 L/D ratio with a 3:1 compression ratio. Shear mixing sections or barrier screws should be avoided. It is best if the die is chrome plated.		
Machine settings:	Feeding Zone	60	[°C]
	Zone 1	175	[°C]
	Zone 2	180	[°C]
	Zone 3	185	[°C]
	Zone 4	185	[°C]
	Adapter	190	[°C]
	Die	195	[°C]
	Mass temperature	190	[°C]

Purging advice for blown film extrusion

Before production:	Ensure that all temperature zones work correctly. The barrel should be purged immediately before and after. Polyethylene should be used as a purge, using a 2-4 melt flow index LDPE.
During production:	Melt temperature during extrusion should not exceed 205 °C because at higher temperatures the material suffers thermal damage, recognizable by yellow discoloration and an increase in melt pressure and torque. Residence time should be held as short as possible, 5-10 minutes at most. Preferably the barrel should be sized such that the residence time is small. The PVOH materials should not be left hot in the machine for extended periods (> 20 minutes).
After production:	Following extrusion of polyvinyl alcohol, the extruder must be cleaned with a polyolefin of similar viscosity (e.g. 2-4 mft LDPE) or a purge material.

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