

SOLPLAST

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SOLPLAST TH

SOLPLAST TH is the trade name for **thermoplastic elastomer compounds (TPS)**, produced through a well-known compounding process of polyolefins (PP, PE, etc.), EVA and additives with SBS, SEEPS or SEBS block copolymers.

Chemical resistance:

- Resistance to acids, bases and all aqueous solutions is **EXCELLENT**
- Resistance to alcohols and glycols is **MEDIUM - GOOD**
- Resistance to aromatic hydrocarbons, fat and oil is **POOR**

The chemical resistance of SOLPLAST TH materials increases with the series is going upwards 7000 < 8000 < 9000.

All SOLPLAST TH grades have a good electric volume resistance of more than $10^{12} \Omega\text{cm}$.

Safety, regulatory and food contact:

SOLPLAST materials meet the following safety and regulatory requirements:

- European Norm SIST EN 71-3:2013 Safety of toys – part 3: Migration of certain elements
- DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 February 2003 amending for the 24th time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations (pentabromodiphenyl ether, octabromo-diphenyl ether)
- COMMISSION REGULATION (EC) No 1881/2006 of 19th December 2006 setting maximum levels for certain contaminants in foodstuffs – PAHs (Polycyclic aromatic hydrocarbons) statement
- REACH regulations according to last updated list on 8th May 2018
- RoHS 2 (2011/65/EU)
- COMMISSION REGULATION (EU) No 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food
- FDA regulation (Code of Federal Regulations, Title 21, (21 CFR), Food and Drug, USA) for contact with fatty foods

SOLPLAST materials are not intended for food contact applications, which require long-term direct contact with oils or fats. The following special **SOLPLAST** materials are not in compliance with food contact and can therefore not be used for food contact applications:

- SOLPLAST TH co-moulding grades (9000 D0, 9000 D and 9000 D1 series)
- SOLPLAST TH FR grades (11000 FR 2V0 and 11000 FR 3.2V0)

SOLPLAST TH materials can be processed with all conventional thermoplastic processing technologies, such as:

- Injection moulding
- Extrusion
- Blow moulding
- Calendering
- Thermoforming

Usually, pre-drying of SOLPLAST TH materials is not required before processing, except special SOLPLAST TH grades such as SOLPLAST TH co-moulding series (9000 D0, 9000 D and 9000 D1 series) and SOLPLAST TH FR series (11000 FR 2V0 and 11000 FR 3.2V0). These series should be pre-dried using the following pre-drying conditions: 3 - 5 hours at 70 - 80 °C.

All natural colored SOLPLAST TH grades can be easily colored by using conventional colour masterbatches based on polyolefin (PE or PP).

Shrinkage:

- Soft grades usually from 2.0 to 3.0 %
- Medium grades to hard grades usually from 1.5 to 2.5 %
- Very hard grades usually from 1.0 to 1.5 %

Please note that shrinkage strongly depends on part geometry and design as well as on processing conditions used. Therefore the shrinkage values given above are only guideline values.

General processing parameters:

- Processing temperature: between 170 and 230°C
- Plasticizing speed: high
- Injection speed: medium to high
- Injection pressure: medium to low

SOLPLAST TH 7000 SERIES

SOLPLAST TH 7000 series are technical compounds based on SBS block copolymers with the following major characteristics:

- Unfilled, filled and transparent grades
- Different physical characteristics and optics possible, depending on purpose of use
- Mainly for indoor applications and not recommended for applications which require high UV stability and high temperature resistance
- Service temperatures are between -50 to +80°C
- Adhesion to polyolefin (e.g. PP) and EVA for 2K overmolding and coextrusion
- Standard colors are black and natural

SERIES	DESCRIPTION	HARDNESS (SHORE)	DENSITY (g/cm ³)	MFI 190°C, 5kg (g/10min)
7000 A0	Virtually unfilled, for injection molding, general use	A20 - D50	0.97	10 - 30
7000 A	Slightly filled, for injection molding, general use	A20 - D50	1.04	10 - 30
7000 A1	Medium filled, for injection molding, general use	A20 - D50	1.12	10 - 30
7000 B	Transparent and unfilled, for injection molding, general use	A50 - A85	0.95	40 - 60
7000 D	Slightly filled, for extrusion, general use	A40 - A90	1.10	4 - 12
7000 D1	Higher filled, for extrusion, general use	A40 - A90	1.15	4 - 12

Detailed technical data and additional information can be found on the individual data sheets.

SOLPLAST TH 8000 SERIES

SOLPLAST TH 8000 series are cost effective technical compounds based on mixed SBS + SEBS block copolymers with the following major characteristics:

- Unfilled and filled grades
- Different physical characteristics and optics possible, depending on purpose of use
- Good UV and colour stability
- Service temperatures between -50 to +100°C
- Adhesion to polyolefin (e.g. PP) and EVA for 2K overmolding and coextrusion
- Standard colors are black and natural

SERIES	DESCRIPTION	HARDNESS (SHORE)	DENSITY (g/cm ³)	MFI 190°C, 5kg (g/10min)
8000 A0	Virtually unfilled, for injection molding, general use	A20 - D50	0.98	10 - 20
8000 A	Slightly filled, for injection molding, general use	A20 - D50	1.06	10 - 30
8000 A1	Medium filled, for injection molding, general use	A20 - D50	1.15	10 - 30

Detailed technical data and additional information can be found on the individual data sheets.

SOLPLAST TH 9000 SERIES

SOLPLAST TH 9000 series are technical compounds based on SEBS and SEEPS block copolymers with the following major characteristics:

- Unfilled, filled, transparent, translucent and adhesion-modified grades
- Different physical characteristics and optics possible, depending on purpose of use
- Excellent UV stability and weather resistance, which makes these grades very suitable for wide spectrum of outdoor applications
- Standard grades provide service temperatures between - 50 to + 125°C
- Co-moulding grades (9000 D0, 9000 D and 9000 D1) provide service temperatures between - 50 to + 90°C
- Transparent grades (9000 B) have a high level of transparency and provide service temperatures between - 50 to + 80°C
- Standard grades have very good adhesion to polyolefin (e.g. PP) and EVA for 2K overmolding and coextrusion
- Co-moulding grades (9000 D0, 9000 D and 9000 D1) have very good adhesion to wide range of engineering plastics (e.g. PC, PC/ABS or PA)
- Standard colors are black and natural
- Pre-drying is recommended for Co-molding grades. Conditions are as follows: 3 - 5 hours at 70 - 80 °C

SERIES	DESCRIPTION	HARDNESS (SHORE)	DENSITY (g/cm ³)	MFI 190°C, 5kg (g/10min)
9000 A0	Virtually unfilled, for injection molding, general use	A10 - D50	0.97	5 - 20
9000 A	Slightly filled, for injection molding, general use	A10 - D50	1.08	10 - 20
9000 A1	Medium filled, for injection molding, general use	A10 - D50	1.16	10 - 20
9000 A2	High filled, for injection molding, general use	A10 - D50	1.23	5 - 20
9000 B	Transparent and unfilled, for injection molding, general use	A10 - A90	0.90	20 - 150
9000 B1	Translucent and unfilled, for injection molding, general use	A10 - D60	0.90	2 - 20
9000 B2	Translucent and unfilled, for extrusion, general use	A30 - D60	0.90	1 - 5
9000 C0	Virtually unfilled, for extrusion, general use	A30 - D50	0.98	1 - 5
9000 C	Slightly filled, for extrusion, general use	A30 - A90	1.08	1 - 5
9000 C1	Medium filled, for extrusion, general use	A30 - A90	1.16	1 - 5
9000 C2	High filled, for extrusion, general use	A30 - A90	1.24	1 - 5
9000 D0	Slightly filled, for 2K overmolding or coextrusion, bond to PMMA, POM, PBT	A30 - A90	1.03	4 - 25
9000 D	Slightly filled, for 2K overmolding or coextrusion, bond to ABS, PVC, PA, PC, etc.	A30 - A90	1.06	1 - 7
9000 D1	Medium filled, for 2K overmolding or coextrusion, bond to ABS, PVC, PA, PC, etc.	A30 - A90	1.14	1 - 7

Detailed technical data and additional information can be found on the individual data sheets.

SOLPLAST TV 10000 SERIES

SOLPLAST TV is the trade name for vulcanized thermoplastic elastomer compounds (TPV), produced through a well-known compounding process of PP and additives with SEEPS block copolymers which are crosslinked to certain degree.

Chemical resistance:

- | | |
|-----------------------------------------------------------|------------------|
| • Resistance to acids, bases and all aqueous solutions is | EXCELLENT |
| • Resistance to alcohols and glycols is | VERY GOOD |
| • Resistance to fat and oil is | GOOD |
| • Resistance to aromatic hydrocarbons is | POOR |

The crosslinking of the SEEPS block copolymers in SOLPLAST TV series gives generally better chemical resistance than non-crosslinked SOLPLAST TH series.

All SOLPLAST TV grades have a good electric volume resistance of more than $10^{12} \Omega\text{cm}$.

Shrinkage:

- | | |
|---------------------------------------------|--------------|
| • Soft grades usually from | 2.0 to 3.0 % |
| • Medium grades to hard grades usually from | 1.5 to 2.5 % |
| • Very hard grades usually from | 1.0 to 1.5 % |

Please note that shrinkage strongly depends on part geometry and design as well as on processing conditions used. Therefore the shrinkage values given above are only guidelines.

SOLPLAST TV 10000 series are high performance technical compounds based on partially crosslinked SEEPS block copolymers with the following major characteristics:

- Different physical characteristics and optics possible, depending on purpose of use
- Excellent UV stability and weather resistance, which makes these grades very suitable for wide spectrum of outdoor applications
- Very good compression set at higher temperatures up to 120°C
- Improved resistance to heat deformation
- Service temperatures are between -50 to +130°C, shortly up to 150°C

SERIES	DESCRIPTION	HARDNESS (SHORE)	DESITY (g/cm ³)	MFI 190°C, 5kg (g/10min)	COMPRESSION SET (%)	
					70°C /23h (%)	120°C /23h (%)
10000 A	Virtually unfilled, for injection molding, general use	A40 - A80	0.96	1 - 30	25 - 35	28 - 42
10000 B	Virtually unfilled, for injection molding, general use	A40 - A80	0.98	1 - 50	28 - 38	42 - 38

Detailed technical data and additional information can be found on the individual data sheets.

SOLPLAST TH 11000 FR SERIES

SOLPLAST TH 11000 FR is the trade name for technical compounds with HALOGEN-FREE FLAME-RETARDANT (HFFR) based on SEEPS or SEBS block copolymers.

Thermoplastic processing of SOLPLAST TH FR series is similar to standard SOLPLAST TH grades (7000, 8000 and 9000 series). However, pre-drying of the SOLPLAST TH FR series (11000 FR 2V0 and 11000 FR 3.2V0) is recommended. Pre-drying conditions are as follows: 3 - 5 hours at 70 - 80 °C.

All natural colored SOLPLAST TH FR grades can be easily colored by using conventional colour masterbatches based on polyolefin (PE or PP).

SOLPLAST TH 11000 FR series are HFFR compounds for flexible flame-retardant applications with the following major characteristics:

- Different physical characteristics and optics possible, depending on purpose of use
- Halogen-free flame-retardant (HFFR) grades
- V0 classification up to 2 mm thickness according to UL 94 vertical flammability test
- Fulfills glow wire (GWFI = Glow Wire Flammability Index) at 960 °C for 2 mm thickness
- Excellent UV stability
- Service temperatures are between -40 to +125°C
- Good adhesion to flame-retardant and non flame-retardant polyolefin (e.g. PP) and EVA

SERIES	DESCRIPTION	HARDNESS (SHORE)	DENSITY (g/cm ³)	MFI 190°C, 5kg (g/10min)	UL 94 - Vertical burning test
11000 FR 2V0	HFFR grades, for injection molding and extrusion	A40 - A85	1.17	0.2 - 2	V0 (2 mm)
11000 FR 3.2V0	HFFR grades, for injection molding and extrusion	A40 - A85	1.12	0.2 - 2	V0 (3.2 mm)

Detailed technical data and additional information can be found on the individual data sheets.



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