A ŵ Ø DELPET[™]

Acrylic resin molding material

High Heat-resistant & Good optical properties SK420N SK430N SK540N Asahi Kasei Corp.

URL:https://www.asahi-kasei.co.jp/delpet/en/



Aug.2022



Contents

1	Features of SK series	p-1
2	SK series lineup	p-2
3	General properties of SK series	р-3
4	Heat-resistant deformation of SK series	p-4
5	Heat-resistant deformation and optical characteristics	p-5
	of SK series	
6	Visibility of SK series	p-6
7	Recommended molding conditions	p-7
8	Applications	p-8
9	Precautions for handling DELPET [™]	p-9



1 Features of SK Series

- ✓ The new super heat-resistant grade SK Series offers a line of grades with high heat-resistant deformation temperatures while maintaining excellent transparency, weather resistance, and appearance, which are characteristic of acrylic resins. This series allows you to choose grades that match your needs.
- \checkmark By using the SK series, birefringence is reduced and products with less optical distortion can be obtained.
- ✓ As an example, there is a merit of improving visibility by reducing light interference even when the meter glass molded using the SK series is viewed through polarized sunglasses.
- ✓ Try it for applications that require more heat resistance than conventional acrylic resins or that dislike optical distortion.

Characteristic image of the SK series				
	Heat resistance (HDT)	Hue	Transparency	Birefringence (Re,Rth)
SK420N	Good	Good	Good-Excellent	Good-Excellent
SK430N	Good	Good	Good-Excellent	Good-Excellent
SK540N	Excellent	Inferior	Good	Excellent
80N (General)	Inferior	Excellent	Excellent	Inferior

3 General properties of SK series

	ISO	ISO (High Hea			SK Series		
Item		Method	Unit	SK420N	SK430N	SK540N	80N
1. Rheological Properties							
Melt mass-flow rate	1122	a/10min	2 1	1 0	1 2	2 0	
(230 °C, 37.3 N)		1155	g/1011111	2.1	1. 0	1. 5	2.0
Spiral flow length Thickness : 2 mm Cylinder Temp : 250 °C M	old Temp : 60 °C Pressure : 75 MPa	ASAHIKASEI PMMA method	cm	2 7	2 6	2 6	2 7
2. Mechanical Properties							
Tensile modulus		527-1/1A/1	MPa	3400	3400	3500	3300
Tensile strength at break		527-1/1A/5	MPa	7 4	7 8	77	77
Tensile strain at break		527-1/1A/5	%	4	4	4	6
Flexural modulus		178	MPa	3200	3200	3200	3300
Flexural strength		178	MPa	103	110	110	130
Charpy impact strength (Unnot	179/1eU	kJ/m ²	17	17	16	2 2	
Charpy impact strength (Notcl	ned)	179/1eA	kJ/m ²	1. 0	1. 0	0.9	1.4
3. Thermal Properties							
Temperature of deflection unde	r load (1.8 MPa)	75-1,2	°C	109	110	118	100
VICAT softening temperature		306 B50	ĉ	117	118	123	109
4. Optical Properties			1				
Refractive index		489	-	1.49	1.49	1.50	1.49
Total luminous transmittance	3 mm	13468-1	%	9 2	9 2	91	9 2
Visible Light Transmittance Y	220 mm	ASAHIKASEI PMMA method	%	8 5	8 1	6 0	8 5
Valla Inday VI	3 mm	17223	-	0.8	0.8	3.0	0.0
	220 mm	ASAHIKASEI PMMA method	-	17	2 4	9 0	1. 0
Birefringence	In-plane (Re)	ASAHIKASEI PMMA method	nm	7.5	7.0	4. 0	5 0
(t=4mm)	Thickness-directional (Rth)		nm	- 3 0	- 2 5	- 1 0	- 6 0
5. Other Properties							
Water absorption (23 °C, 24 hr	62 method1	%	0.3	0.3	0.3	0.3	
Density	1183	g/cm ³	1.19	1.19	1.19	1.19	
Rockwell hardness M scale	2039-2	-	100	100	100	100	
Mold shrinkage	ASAHIKASEI PMMA method	%	$0.3 \sim 0.8$	$0.3 \sim 0.8$	$0.3 \sim 0.8$	$0.2 \sim 0.6$	

NOTE: The test piece preparation conditions, annealing conditions, and test conditions are representative values of natural colors obtained by conducting tests in accordance with the conditions specified or recommended by the PMMA resin standard of ISO8257-2, and are not guaranteed values. Please use these values as a reference when selecting the most suitable grade for each respective use. In addition, these values may change due to the improvement of properties.



4 Heat-resistant deformation of SK series

The SK series has higher heat-resistant deformation temperature than general PMMA.

Temperature of deflection under load (DTUL)



5 Heat-resistant deformation and optical characteristics

The SK series has better optical properties than heat-resistant acrylic and conventional super heat-resistant acrylic.



*All data are typical values and are not guaranteed value.

6 Visibility of SK series

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When polycarbonate or conventional acrylic is used as the display cover, visibility deteriorates due to the effect of optical distortion

when looking through polarized sunglasses.

The SK series has low optical distortion and improves display visibility.



7 Recommended molding conditions

Grades		Drying co	Drying conditions Mol		Molding conditions		Annealing conditions	
		Temp.	Time	Cylinder	Mold	Temp.	Time	
		°C	Hrs.	°C	°C	°C	Hrs.	
SK Series	SK420N	95-100	3-6	210-260	60-100	90-100	3-5	
	SK430N	55 100	5.0	210 200	00 100	50 100	5.5	
	SK540N	100-105	3-6	210-260	60-100	95-105	3-5	

1. Pre-drying:	DELPET [™] is hygroscopic. In addition, even if the bag is unopened, it gradually absorbs moisture, so it is necessary to pre-dry the pellets before molding.
	If the drying is insufficient, poor appearance is likely to occur.
	The drying condition also changes depending on the drying equipment.
2. Dustproof:	If foreign matter gets mixed in, it will spoil the appearance of the molded product, so please be careful about dust protection in the room and dust protection when opening the pellets. Also, pay attention to cleaning the hopper and dryer of the molding machine.
3. Resin switching:	Mixing with a small amount of other resin tends to cause appearance defects such as white turbidness and haze. Thoroughly clean the hopper, cylinder, nozzle, etc. of the molding machine so that other resins do not adhere to them. Also, please note that mixing with other companies' methacrylic resins or mixing with different grades may cause molding defects.
4. Molding temperature:	From the viewpoint of physical properties and preventing from deterioration of quality, it is recommended to use at a cylinder temperature of 260 °C or less.

8 Applications



Console panel /Dual molded surface layer

Light guide, Aspherical PES lens



HUD prism, Lens, Combiner



Indicator cover /Dual molded surface layer



8 Precautions for handling DELPET[™]

These data are based on the documents, information and data now available and may be changed when new knowledge or information is acquired.

(1) Safe Handling

Safety Data Sheets (SDS) on DELPET^M are available from Asahi Kasei Corporation. Please be sure to read the DELPET^M Handling Precautions listed in the separate Product Safety Data Sheet before using DELPET^M. The main points when handling DELPET^M are as follows. Please use them for the safe handling of DELPET^M. Please investigate the safety of additives, etc., used by your company aside from DELPET^M.

① Precautions for safety and health

The main component of the gas generated when DELPET[™] is melted and when the resin is decomposed is methyl methacrylate, which is a raw material monomer. Be careful to avoid contact with eyes and skin and inhalation. Also, do not touch the high temperature resin directly. For each work such as melting, it is necessary to install a local exhaust ventilation and wear protective equipment (protective glasses, protective gloves, etc.).

② Precautions regarding combustion

DELPET[™] is flammable, so handle and store it away from heat and ignition sources. During a fire, irritating and highly toxic gases such as carbon-monoxide may be generated by thermal

decomposition or incomplete combustion. Use water, foam and dry chemical extinguishants as extinguishing media.

③ Precautions for disposal

In principle, dispose of by incineration or landfill. When incinerating, use incineration facilities to treat and incinerate in accordance with relevant regulations. When landfilling, treat in accordance with relevant regulations. Or consign to a specialized disposal contractor approved by the prefectural governor. Dispose of empty bags properly without reuse or diversion.

④ Precautions for storage

It is a combustible material (synthetic resin) and should be handled in accordance with the relevant regulations.

5 Precautions for molding

Please note the following points to avoid decomposition of the resin.

- Do not allow the resin to stay in the processing machine at high temperature for a long time.
- If pellets are scattered on floors, they should be collected immediately because they are slippery.

(2) Conforming standards

DELPET[™] is available in grades that comply with various standards including UL (Underwriters Laboratories Inc.), SAE (Society of Automotive Engineers), and Electrical Appliance and Material Safety Law, etc. There are grades that have received a confirmation certificate (Japan Hygienic Olefin And Styrene Plastics Association type) (or an equivalent confirmation certificate). Conformance to these standards is determined by specific test methods. Safety as a product should be verified after conducting appropriate tests for the application of use.

(3) Others

Please give heed to industrial property rights when using.

[Inhibited Applications]

Do not use DELPET[™] on medical devices and products that come into contact with human tissues or fluids for a long period of time (more than 30 days), or on anything that touches or may be swallowed by infants. In addition, please be sure to contact our acrylic resin sales department in advance when using for medical purposes that do not fall under the above, applications that come into contact with food and drinking water, applications such as cosmetics, toys, sports equipment, etc. We will consult with you individually.

If you need information on the product safety of DELPETTM, please contact Asahi Kasei Corporation MMA Division / Acrylic Resin Sales Department.

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THE COMMITMENT OF THE ASAHI KASEI GROUP:

To do all that we can in every era to help the people of the world make the most of life and attain fulfillment in living. Since our founding, we have always been deeply committed to contributing to the development of society, boldly anticipating the emergence of new needs. This is what we mean by "Creating for Tomorrow."

