

[General Characteristic
and Grade Lineup](#)

[Physical Properties](#)

[Injection Molding /
Fabricatinging](#)

[Applications](#)

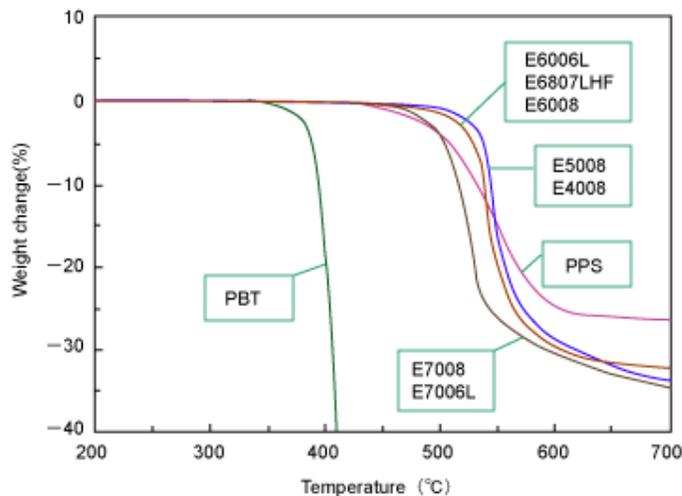
Heat Resistance of LCP

Thermal Decomposition Temperature

SUMIKASUPER LCP possesses high thermal stability.

The results from a TGA (Thermogravimetric Analysis) (shown in Figure 1 and Table 1) indicate that the temperature of thermal decomposition in nitrogen is quite high, being approximately 450 °C, and the decrease in mass at a temperature of 500 °C is extremely small (only 1%). Therefore, SUMIKASUPER LCP can be seen to exhibit high thermal stability.

Figure 1 TGA Curve



Measuring instrument: TG50 model by Simadzu Seisakusho

Temperature ramp rate: 10 °C/min

Atmosphere: Under nitrogen

table 1 Thermal Decomposition Temperature

Resin components	Decomposition temperature(°C)	
	1%weight loss temperature	Main decomposition temperature
E5008 E5008L	520	559
E4008	520	555
E6008 E6006L	500	550
E6807LHF	500	550
E7008 E7006L	480	530
PBT(GF-30%)	370	421
PPS(GF-40%)	460	556

▲ TOP

Deflection Temperature Under Load



The approximate deflection temperature under load for each grade of SUMIKASUPER LCP is as follows:

- E5000 Series : 330 - 360 °C
- E4000 Series : 310 - 320 °C
- E6000 Series : 270 - 290 °C
- E6000HF Series : 250 - 280 °C
- E7000 Series : 240 - 250 °C

Long-term Heat Resistance

SUMIKASUPER LCP possesses outstanding long-term heat resistance.

UL Temperature Index

Table 2, below, indicates the relative temperature index values (UL746B) for SUMIKASUPER LCP.

table 2 Relative temperature index of SUMIKASUPER LCP (UL-746B)

(t=3.2mm)

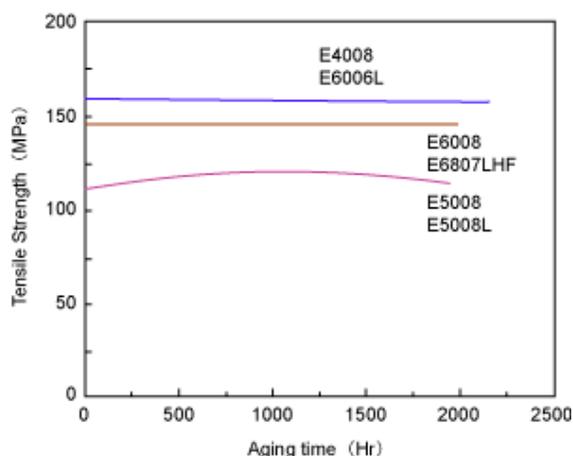
Grade	Item		
	Electric	Mechanical	
		With impact	Without impact
E5008	240	220	240
E5008L	240	220	240
E4008	200	200	240
E6008	220	200	240
E7008	130*	130*	130*
E7006L	130*	130*	130*

Notes) *mark means the minimum temperature value given to wholly aromatic liquid crystalline polyester.

Heat Aging Resistance (260 °C).

Figure 2 depicts the strength retention characteristics of SUMIKASUPER LCP in an atmosphere having a temperature of 260 °C.

Figure 2 Heat aging property of SUMIKASUPER LCP (260 °C in air)

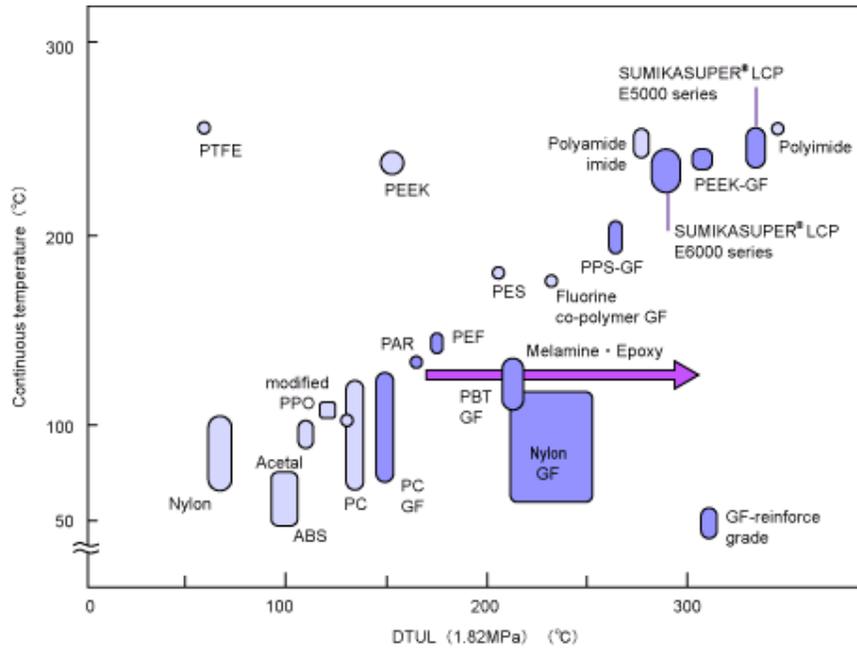


Continuous Service Temperature

SUMIKASUPER LCP has outstanding balance between deflection temperature under load and continuous service temperature.

Figure 3 Continuous Service Temperature and DTUL

TOP



Soldering Heat Resistance

SUMIKASUPER LCP possesses the highest soldering heat resistance among all heat-resistant engineering plastics.

		Solder bath temperature (°C)								
		220	240	260	280	300	320	340	360	
SUMIKA SUPER [®] LCP	E5000 Series	>60							5	
	E4000 Series	>60						10		
	E6000 Series	>60					10			
	E7000 Series	>60			5					
PEEK	450GL30	>60					10	3		
PPS	GF40%	>60		5	3					
	High filler content	>60		10	1					

Dimensions of specimen : JIS K7113 No.(1/2)dumbbell × 1.2t,
Solder : H60A(Tin60%,lead40%)

* The values within the above graph represent the limit, in seconds ("> 60" means the product will not deform, even when soaked in a solder bath for 60 seconds). Blistering may occur, even in temperatures less than the above deformation temperatures, depending upon the molding conditions.



All Rights Reserved, Copyright © 2003 Sumitomo Chemical Company

