



UNITIKA PLASTICS DIVISION
[Japanese](#) [Chinese](#)
[Printing Tips](#)

[Nylon Resin](#)
[U-polymer](#)
[TERRAMAC](#)
[UNILATE](#)
[elitel](#)
[Powder Paint Resins](#)

[U-polymer](#) > [U Series](#) > Composite Grade > [Top Page](#)

Schematic Grade Diagram

Position among Engineering Plastics

Available Grades

U-100 (neat polymer)

P Series

U Series

[U Series Resins](#)
[Technical Data](#)
[Composite Grades](#)

AX Series

Precautions in molding

Applications

Contact Us

U-polymer

U Series Resins Composite Grade

(1) L-8005, LM-8503-10

Characteristics

- Chemical resistance, and excellent lubricant property

Properties

[Print Table on A4 Paper](#)

	Item	ASTM	Unit: SI (conventional)	L-8005	LM-8503-10
Mechanical Properties	Density	D-792	-	1.29	1.38
	Water absorption (1/8", 24hrs)	D-570	%	0.15	0.13
	Light transmittance (Thickness: 3mm)	D-1003	%	-	-
	Tensile strength	D-638	MPa {kg/cm ² }	64 {650}	69 {700}
	Elongation at break	D-638	%	85	9
	Bending strength	D-790	MPa {kg/cm ² }	99 {1,010}	109 {1,110}
	Bending modulus	D-790	GPa {kg/cm ² }	2.5 {25,500}	3.4 {35,000}
	Compressive strength (Yield)	D-695	MPa {kg/cm ² }	-	86 {880}
	Izod impact strength (1/8", with notch)	D-256	J/m {kg-Ecm/cm}	78 {8}	47 {4.8}
	Rockwell hardness	D-785	R	125	123
Thermal properties	Deflection temperature under load 1.8MPa {18.6kg/cm ² }	D-648	°C	110	110
	Linear expansion coefficient	D-696	10 ⁻⁵ /K {10 ⁻⁵ cm/cm/°C}	6.2	-
	Dielectric breakdown strength	D-149	MV/m {kv/mm}	40	-
	Specific volume resistivity	D-257	Ωm {Ωcm}	2x10 ¹⁴ {2x10 ¹⁶ }	-
Electrical Properties	Dielectric constant (10 ⁶ Hz)	D-150	PF/m	26 {3.0}	-
	Dielectric dissipation factor(10 ⁶ Hz)	D-150	-	0.015	-
	Ark resistance	D-495	s	120	-
	Tracking resistance	IEC	V	-	-
Other properties	Molding shrinkage (Thickness: 3mm)	-	%	0.8	0.37
	Flow direction, orthogonal direction	-			

<Technical Data>

Properties of lubricant materials

Item	L-8005	LM-8503-10	POM
Deflection temperature under load 1.8MPa {18.6kg/cm ² }	110	110	110
Limiting PV value kPa • m/s {kg/cm ² • cm/s}	-	-	376 {383}
Coefficient of dynamic coefficient*	0.2~0.3	0.2~0.4	0.2~0.3
Relative abrasion* {mm ³ /km • kg}	-	-	2.13
Dimensional stability	O	O	Δ
Creep resistance	O	O	O
Rigidity	O	⊙	O
Chemical resistance	Δ	Δ	⊙

*Counterpart: S45C ⊙: Excellent O: Good, Δ: inferior

(2) FUN-8000**Characteristics**

- High impact strength
- High chemical resistance
- Transparency as high as polycarbonate

Properties[Print Table on A4 Paper](#)

	Item	ASTM	Unit: SI (conventional)	FUN-8000
Mechanical Properties	Density	D-792	-	1.22
	Water absorption (1/8", 24hrs)	D-570	%	0.15
	Light transmittance (Thickness: 3mm)	D-1003	%	87
	Tensile strength	D-638	MPa {kg/cm ² }	66
	Elongation at break	D-638	%	78
	Bending strength	D-790	MPa {kg/cm ² }	81
	Bending modulus	D-790	GPa {kg/cm ² }	2.1
	Compressive strength (Yield)	D-695	MPa {kg/cm ² }	-
	Izod impact strength (1/8", with notch)	D-256	J/m {kg-Ecm/cm}	450
	Rockwell hardness	D-785	R	-
Thermal properties	Deflection temperature under load 1.8MPa {18.6kg/cm ² }	D-648	°C	123
	Linear expansion coefficient	D-696	10 ⁻⁵ /K {10 ⁻⁵ cm/cm/°C}	-
	Dielectric breakdown strength	D-149	MV/m {kv/mm}	-
Electrical Properties	Specific volume resistivity	D-257	Ωm {Ωcm}	-
	Dielectric constant (10 ⁶ Hz)	D-150	PF/m	-
	Dielectric dissipation factor(10 ⁶ Hz)	D-150	-	-
	Ark resistance	D-495	s	-
	Tracking resistance	IEC	V	-
Other properties	Molding shrinkage (Thickness: 3mm)	-	%	0.8
	Flow direction, orthogonal direction			

(3) UM-8400-20,UM-8430RG**Characteristics**

- High dimensional accuracy (circularity and planarity)
- Large warping resistance
- Low linear expansion coefficient

Properties[Print Table on A4 Paper](#)

	Item	ASTM	Unit: SI (conventional)	UM-8400-20	UM-8430RG
Mechanical Properties	Density	D-792	-	1.43	1.51
	Water absorption (1/8", 24hrs)	D-570	%	0.13	-
	Light transmittance (Thickness: 3mm)	D-1003	%	-	-
	Tensile strength	D-638	MPa {kg/cm ² }	73 {740}	63 {645}
	Elongation at break	D-638	%	6.5	16
	Bending strength	D-790	MPa {kg/cm ² }	120 {1,220}	106 {1,080}
	Bending modulus	D-790	GPa {kg/cm ² }	4.7 {48,000}	4.3 {44,000}
	Compressive strength (Yield)	D-695	MPa {kg/cm ² }	-	-
	Izod impact strength		J/m		

Thermal properties	1200 impact strength (1/8", with notch)	D-256	J/m ² {kg-Ecm/cm}	44 {4.5}	43 {4.4}
	Rockwell hardness	D-785	R	116	116
	Deflection temperature under load 1.8MPa {18.6kg/cm ² }	D-648	°C	98	100
	Linear expansion coefficient	D-696	10 ⁻⁵ /K {10 ⁻⁵ cm/cm/°C}	2.8	2.3
	Dielectric breakdown strength	D-149	MV/m {kv/mm}	21<	17
	Specific volume resistivity	D-257	Ωm {Ωcm}	1x10 ¹⁴ {1x10 ¹⁶ }	5x10 ¹³ {5x10 ¹⁵ }
Electrical Properties	Dielectric constant (10 ⁶ Hz)	D-150	PF/m	-	-
	Dielectric dissipation factor(10 ⁶ Hz)	D-150	-	-	-
	Ark resistance	D-495	s	-	-
	Tracking resistance	IEC	V	-	-
Other properties	Molding shrinkage (Thickness: 3mm)	-	%	0.25	0.3
	Flow direction, orthogonal direction				

<Technical Data>

Properties of Precision Molding Grade Resins

Item	U-polymer		PC-G20%	PPS warping-resistance grade
	UM-8400-20	UM-8430RG		
Flange mold: warp amount (mm)	0.25	0.20	0.38	0.35
44φ Cylindrical mold: external circularity (μm)	33	30	45	-
44φ Cylindrical mold: external surface run-out (μm)	30	30	50	75
18φ Cylindrical mold: internal circularity (μm)	18	15	38	33
Accuracy evaluation	○	◎	Δ	X
Heat resistance	Δ	Δ	○	◎
Self-tapping resistance	Δ	○	◎	○
Rigidity	○	○	○	◎
Appearance	◎	◎	X	○
Lubrication	○	○	Δ	○
Moldability	◎	○	Δ	X

◎: Excellent ○: Good Δ: Inferior

[▲ To Page Top](#)

Copyright (C) 2000-2007, UNITIKA LTD. All Rights Reserved.