

超耐熱性光学樹脂 シルセテック

Super heat resistant optical resin "Silsetech"

What is Silsetech ?

シルセテックシリーズはガラスに替わる新たな光学材料として開発された小西化学独自のケイ素系熱硬化性樹脂です。

Silsetech series are Konishi Chemical's original silicon-based thermosetting resins developed as a new optical material to replace glass.

シルセテックLRは脱水縮合反応によりシロキサン結合の架橋で熱硬化でき、高い光透過率と高耐熱性を持つ硬化物を作成出来ます。

Silsetech LR can be thermoset by cross-linking siloxane bonds by dehydration condensation reaction, and can produce cured products with high light transmittance and high heat resistance.

Product lineup of Silsetech series

品名 Product name	固形分濃度 Concentration	溶剤 Solvent	粘度 Viscosity
Silsetech LR1	70 wt%	PGME	300 mPa・s
Silsetech LR2	70 wt%	PGME	180 mPa・s

推奨の硬化触媒もご提供致します。 We also provide recommended curing catalysts.



Physical Properties for Silsetech series

What is the difference between LR1 and LR2 ?

Silsetech LR1

硬化速度が速く、硬化物はガラス並みの表面硬度を有し、耐擦傷性が求められる用途に適しております。

LR1 has a high curing rate, and the cured product has a surface hardness comparable to glass. It is suitable for applications that require scratch resistance.

Silsetech LR2

硬化速度が遅く、コーティングや厚みのあるシートなど様々な形状に成形可能です。

LR2 has a slow curing rate and can be molded into various shapes such as coatings and thick sheets.

硬化条件 Curing conditions thickness :1mm		
硬化触媒量 Curing catalyst amount		500 ppm
熱硬化条件 Thermosetting conditions		60°C 1.5hr →180°C 15min
試験項目 Test	試験値 Value	
比重 Specific weight	1.36 g/cm ³	
鉛筆硬度 Pencil hardness thickness :1mm	9H	
光透過率 Transmittance thickness :1mm	94%	
屈折率 Refractive index (589nm)	1.40	
T _{d1} 1% weight reduction temperature	294°C	
ヤング率 [ナノインデント] Young's modulus by Nano-indenter	0.9 GPa	
熱膨張率 Coefficient of thermal expansion	210 ppm/°C	
比誘電率 Dielectric constant (1GHz)	2.87	
誘電正接 Dielectric loss tangent (1GHz)	0.023	

硬化条件 Curing conditions thickness : 1mm		
硬化触媒量 Curing catalyst quantity		2,000 ppm
熱硬化条件 Thermosetting conditions		70°C 1.5hr →110°C 1hr →180°C 15min
試験項目 Test	試験値 Value	
比重 Specific weight	1.34 g/cm ³	
鉛筆硬度 Pencil hardness thickness :1mm	8H	
光透過率 Transmittance thickness :1mm	94%	
屈折率 Refractive index (589nm)	1.40	
T _{d1} 1% weight reduction temperature	246°C	
ヤング率 [ナノインデント] Young's modulus by Nano-indenter	0.7 GPa	
熱膨張率 Coefficient of thermal expansion	174 ppm/°C	
比誘電率 Dielectric constant (1GHz)	3.35	
誘電正接 Dielectric loss tangent (1GHz)	0.024	