U-Cure 9590

聚氨酯丙烯酸酯 / Polyurethane Acrylate

二官能聚氨酯丙烯酸酯树脂 / *Difunctional Polyurethane Acrylate Resin*

KASTER

Innovation in Polymer Chemistry

昆山卡斯特高分子材料有限公司

技术资料表　Technical Data Sheet (TDS)

1　产品介绍 Product Introduction

U-Cure 9590 是一款高性能二官能聚氨酯丙烯酸酯（*PUA*）树脂。该产品通过特殊的分子结构设计，在维持极高断裂伸长率的同时，具备了半硬质树脂的机械强度与刚性。该树脂表现出极低的固化收缩率和卓越的基材附着力，尤其在耐热性、抗冲击剥离以及耐化学介质方面具有显著优势。

U-Cure 9590 is a high-performance difunctional polyurethane acrylate (PUA) resin. It is engineered to maintain exceptional elongation while delivering the mechanical strength and rigidity typical of semi-rigid resins. It exhibits extremely low curing shrinkage and superior substrate adhesion, offering significant advantages in heat resistance, impact peel resistance, and chemical stability.

2　物理及力学特性 Physical & Mechanical Properties

性能参数 Properties	典型指标 Typical Value	测试标准 Standard
外观 Appearance	透明澄清液体 / Clear Liquid	Visual
粘度 Viscosity (cps @ 60°C)	2,000 - 8,000	ASTM D2196
固含量 Solid Content (%)	100%	GB/T 1725
官能度 Functionality	2	Theoretical
NCO 残存 NCO Content (%)	$\leq$ 0.1	Titration
绍氏硬度 Shore Hardness	58D	ASTM D2240
拉伸强度 Tensile Strength	24 MPa	ASTM D638
断裂伸长率 Elongation	240%	ASTM D638

3　核心特性 Key Product Features

- **极低收缩与高附着 (Low Shrinkage & High Adhesion)**
  固化过程应力极低，对各类难附着基材（如 *PC*、*ABS*、*PET* 及金属）均表现出极佳的原始附着力与热老化附着力。
  Features extremely low curing stress, providing excellent primary and heat-aged adhesion to challenging substrates such as PC, ABS, PET, and metals.

- **高韧性与弹性回复 (High Toughness & Elastic Recovery)**
  拥有极高的断裂伸长性能，同时具备中等偏高的硬度支撑，使其在受力变形后能迅速恢复原状而不产生裂纹。
  Combines high elongation at break with moderate-to-high hardness support, ensuring rapid recovery after deformation without cracking.

- **优异的耐候与耐热性 (Superior Weathering & Heat Resistance)**
  特殊链段设计使其在高温环境下仍能保持物理性能稳定，不易脆化或黄变。
  Special segment design ensures stable physical properties and resistance to embrittlement or yellowing even in high-temperature environments.

4 建议应用 Product Applications

- **高性能消费电子涂料 (Consumer Electronics Coatings)**
  适用于手机背板、中框及笔电外壳，能够通过严苛的百格、摩擦及跌落冲击测试。
  Suitable for mobile backplates, frames, and laptop casings, passing stringent cross-hatch, abrasion, and drop impact tests.

- **薄膜开关与柔性显示 (Film Switches & Flexible Display)**
  作为功能性涂层应用于 *PET* 或 *PC* 薄膜，提供极高的弯折寿命，确保在反复按压下不产生白化或龟裂。
  Applied as a functional coating for PET or PC films, offering high folding life and ensuring no whitening or cracking under repeated pressing.

- **精密电子胶粘剂 (Precision Electronic Adhesives)**
  由于其低收缩和高韧性特征，非常适合用于摄像头模组、传感器及微电子元器件的结构粘接与密封。
  Ideal for structural bonding and sealing of camera modules, sensors, and micro-electronic components due to its low shrinkage and high toughness.

5 常见问题解答 Q&A

Q: U-Cure 9590 的附着力表现如何？ (How is the adhesion of U-Cure 9590?)

A: 由于该产品具有高玻璃化转变温度（*Tg*）且收缩率极低，它能有效降低界面应力，对极性塑料和金属基材展现出极强的物理锚固力。
Since the product features high Tg and extremely low shrinkage, it effectively reduces interfacial stress and demonstrates strong physical anchoring on polar plastics and metal substrates.

Q: 为什么该树脂在某些测试中固化速度相对较慢？ (Why is the curing speed relatively slow?)

A: *U-Cure 9590* 旨在兼顾高韧性与低收缩，其聚合反应特性趋向于中等速率。如需提升效率，建议增加高效光引发剂比例或添加少量高官能度单体调节。
U-Cure 9590 is designed for high toughness and low shrinkage, leading to moderate polymerization rates. To increase efficiency, it is suggested to increase photoinitiator ratio or add high-functional monomers.

6 储存与安全 Storage and Safety

- **储存 (Storage)***:* 应存放在密封容器中，置于温度在 *-10～35°C* 的阴暗环境中。保质期 *12* 个月。
  Store in sealed containers in a dark environment at -10 to 35°C. Shelf life is 12 months.

- **安全 (Safety)***:* 对眼睛有刺激性；对水生生物有毒。操作请佩戴个人防护装备，详见 *SDS*。
  Irritating to eyes; toxic to aquatic life. Wear personal protective equipment. Refer to SDS for details.

联系方式 Contact Information

昆山卡斯特高分子材料有限公司　Kunshan Kaster Polymer Co., Ltd.
地址：江苏省昆山市玉山镇祖冲之路 1666 号清华科技园
Tel: 0512-50137234　Web: www.kasterchem.com