

# Optical adhesive OPTODYNE

 TECHNICAL  
DATASHEET

**OPTODYNE is a reliable UV curable optical adhesive with controlled refractive index.**

## Introduction

- **Transparent ultraviolet (UV) curing type optical adhesive** based on fluorinated epoxy and fluorinated acrylate resin.
- It is used to connect optical fibers requiring **optically optimal refractive index matching** as well as adhesion fixing function.
- **Highly reliable adhesive** with excellent adhesion and workability.

## General physical properties

Item	UV-3000	UV-1100	UV-2100	UV-3100	Reference
Main constituents	Acryl	Epoxy	Epoxy	Epoxy	
Before-curing characteristics					
Appearance	Light yellow transparent				Visual check
Viscosity (mPa · s)	1400	230	230	460	25°C
Specific gravity	1.07	1.36	1.31	1.33	25°C
Refractive index 589nm	1.475	1.435	1.453	1.471	23°C
Flash point (°C)	132	118	128	127	
Post-curing characteristics					
Appearance	Light yellow transparent				Visual check
Specific gravity	1.14	1.42	1.38	1.38	
Hardness	57	82	80	80	Shore D
Glass transition temperature (°C)	100	145	129	130	Dynamic viscoelasticity (tanδ)
Refractive index 589nm	1.498	1.457	1.477	1.493	23°C
	1320nm	1.482	1.449	1.467	25°C
Transmittance (%) 1300nm	92.5	93.4	92.9	92.6	Thickness 0.1mm
	500~1600nm	>90	>90	>90	
Saturated water absorption rate (%)	0.5	1.3	1.2	1.4	Thickness 0.1mm, 23°C
	0.11	0.13	0.15	0.15	Thickness 3.0mm, 23°C×24h
Saturated moisture absorption rate (%)	0.5	2.4	1.7	2.0	Thickness 3.0mm, 85°C/85%RH
Mass decrease onset temperature (°C)	226	145	145	155	TGA
Temperature of 5% weight loss (°C)	328	313	305	312	TGA

Item	UV-3000	UV-1100	UV-2100	UV-3100	Reference
Post-curing characteristics					
Coefficient of thermal expansion (1/°C)	6.2×10 <sup>-5</sup>	–	10.7×10 <sup>-5</sup>	9.0×10 <sup>-5</sup>	Average of 25°C~80°C
Curing contraction rate (%)	5~7	4~5	4~5	3~4	
Young modulus (Pa)	3.8×10 <sup>8</sup>	2.7×10 <sup>9</sup>	2.4×10 <sup>9</sup>	2.5×10 <sup>9</sup>	Dynamic viscoelasticity, 30°C
Bonding strength change [moisture resistance]					
Initial (MPa)	7.8	6.6	8.6	12.3	Pyrex glass 85°C/85%RH
After 2 weeks	9.2	–	9.3	12.0	
After 4 weeks	6.5	7.5	7.2	13.7	
After 6 weeks	5.2	7.4	13.6	11.1	
Bonding strength change [heat cycle resistance]					
Initial (MPa)	7.3	6.6	8.6	12.3	Pyrex glass -40°C~85°C/90%RH 6 hour/1cycle
After 100 cycles	10.7	6.4	12.6	9.1	
After 300 cycles	10.1	8.7	7.5	8.7	
After 500 cycles	8.7	7.5	11.9	10.4	

Curing conditions: 5 J/cm<sup>2</sup> or 10 J/cm<sup>2</sup> UV light was irradiated with a high pressure mercury lamp

Fracture mode with bonding strength change is due to glass breakage

\* The above values are representative and not guaranteed.

\* Optodyne UV-1100, UV-2100, UV-3100 contains about 2% antimony compound.

### Handling method/Safety information

- Be sure to read the notes on SDS and labels before use.
- This product is intended for general industry use and therefore its adequacy and safety as a raw material for medical purposes cannot be guaranteed.

### Packing specification

- 5g (tube)
- 50g (tube)

For more information, visit our website.

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