



Improved Surface Hardness



Wear Resistance



Abrasion Resistance

# Wear Resistant Type X-12-2444

UV Cure

## Features

- Dispersion of non-agglomerated spherical silica fine particles (average particle size: 20 nm)
- Low viscosity (400 mPa·s) with silica content of 50%
- Formation of cured coating with excellent UV curability and excellent wear resistance (Fully curable in air or without photoinitiator)

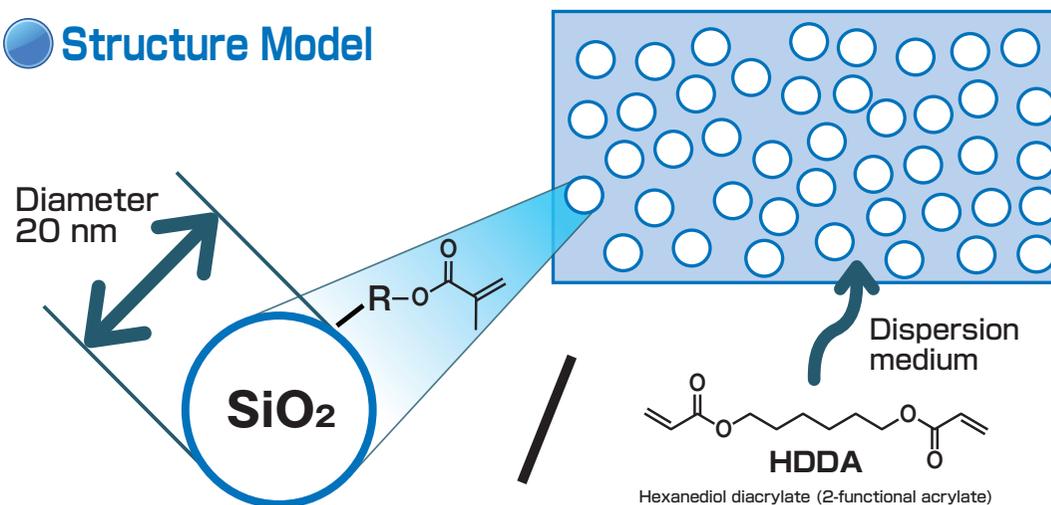
## General Properties

### Before curing

Parameter	Product name	X-12-2444
Appearance		Pale yellow transparent liquid
Viscosity at 25°C	mPa·s	400
Refractive index at 25°C		1.458
Silica content	%	50
Silica average particle size	nm	20
Components other than silica		HDDA (hexanediol diacrylate)

(Not specified values)

## Structure Model



### After curing

Condition	Parameter	Transparency (initial Haze)		Wear resistance (ΔHaze*1)	
		X-12-2444	Comparison DPHA*2 (50% in HDDA)	X-12-2444	Comparison DPHA*2 (50% in HDDA)
UV cure conditions/materials					
600 mJ/cm <sup>2</sup> under nitrogen		0.6	0.47	4.82	6.46
2400 mJ/cm <sup>2</sup> in air		0.52	0.46	3.38	13.41

Cure conditions: 15 μm coating on polycarbonate substrate (thickness 5 mm) → UV curing under each conditions, blending 5% by weight of photoinitiator

Photoinitiator = 2-hydroxy-2-methylpropiophenone = Made by BASF Japan (formerly Ciba): DAROCUR 1173

\*1 Taber abrasion test result (500 g/cm<sup>2</sup> load, 500 times rotation)

\*2 DPHA = dipentaerythritol hexaacrylate (6-functional acrylate)

(Not specified values)