

**To 偉鉑瑞信**

# LUCIACS for Automotive

Nitto Denko Corporation

**Research and Development DIV.  
Information Fine Materials  
Sector**

**455-6, Hongo, Minogo,  
Onomichi,**

**Hiroshima, 722-0212, JAPAN**

**TEL: +81-848-48-2100**

**FAX: +81-848-48-2302**

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# Basic properties of LUCIACS®



Item		Unit	CS982 series	CS982SK Series	CS986 series	CS986S series	CS989 series	CS990 series	CS993 series	FL3 Series
thickness		um	100-250	100-250	50-500	25-500	50-250	25-125	50-150	25-100
Optical property *1	Transmittance	%	92	92	92	92	92	92	92	92
Adhesion force *2	Glass (OCA thickness)	N/20mm	7 (100)	12 (100)	15 (100)	18 (100)	23 (100)	15 (100)	15 (100)	10 (50)
Dielectric constant at 100kHz*3		-	6.8	6.8	4.1	4.1	2.7	4.1	4.3	3.8
Ink step absorption	Glass /Film	%	20-25	20-25	20-25	25-30	20-25	20-25	20-25	50
Recommended applications or Features			For Plastic /glass cover	For Plastic /glass cover,full lamination	For Plastic cover	Full lamination	Full lamination (Low dielectric constant)	For metal mesh sensor	UV cut	foldable

Notice; The above-mentioned is a central value, and not a guaranteed value.

※1; Optical properties are including glass substrate. (S-1111, MATSUNAMI GLASS IND., LTD.)

※2; Peel speed: 300 mm/min, Angle: 180°

※3; According to JIS K6911, Equipment: E4980A Precision Impedance Analyzer (Agilent Technologies)

Method :capacitance method Environment: 23 °C, 50%RH

# Basic properties of OCA for Automotive



Item		Unit	CS982 series	CS982SK series	CS986 series
Thickness lineup		um	100-500	100-250	100-500
Optical property	transmittance	%	92 (>99 *1)	92 (>99 *1)	92 (>99 *1)
Adhesion force *2	Glass OCA:175μm	N/20mm	8	12	16
Dielectric constant at 100kHz*3		-	6.8	6.8	4.1
Ink step absorption	Glass /film	%	≤OCA thickness × 20-25%	≤OCA thickness × 25-30%	≤OCA thickness × 20-25%
	Glass /Glass	%	≤OCA thickness × 5%	≤OCA thickness × 10%	≤OCA thickness × 5%
Modulus (G')	25°C	KPa	143	118	198
	95°C	KPa	95	30	106
Acid contain		-	Free	Free	Free
Recommend cover material			Plastic Glass	Glass	Plastic Glass
Feature			<ul style="list-style-type: none"> <li>• Excellent reliability for plastic</li> <li>• High light resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Anti-MURA</li> <li>• High ink step absorption</li> <li>• High light resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent reliability for plastic</li> </ul>

Notice; (1) The above-mentioned is a central value, and not a guaranteed value.

(2) Optical properties are including glass substrate. (S-1111, MATSUNAMI GLASS IND., LTD.)

※1; Correction value of transmittance excluding the influence of substrate and the interfacial reflection losses.

※2; Peel speed: 300 mm/min, Angle: 180°

※3; According to JIS K6911, Equipment: E4980A Precision Impedance Analyzer (Agilent Technologies)

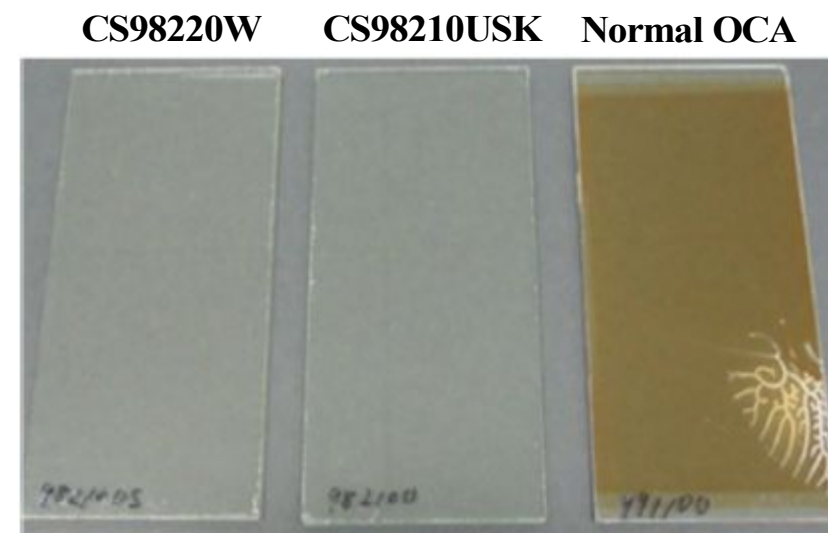
Method : capacitance method Environment: 23 °C, 50%RH

# High light resistance Type

## CS982 series

Test piece	Item	Solar test result (1000H)		
		CS98220W	CS98210USK	Normal OCA
Glass	Appearance	OK	OK	NG
OCA	b* (After test)	0.5	0.8	35
Glass				

Solar test condition		
Lamp	Xenon	
Illuminance (300-400nm)	120 W/m <sup>2</sup>	
Illuminance (300-765nm)	1080 W/m <sup>2</sup>	
filter	In	quartz
	Out	#275
Temperature	63 °C	
Humidity	50 %RH	
Test time	1000 H	



# Polyen test 95°C non Preheat

## Test structure






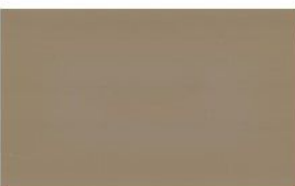


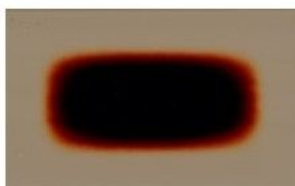



Glass
OCA
NSPZ-HDZQ
Glass

Glass : Soda-lime glass(0.7 mmt), MATSUNAMI GLASS IND., LTD.

Test Piece size : 50mmx100mm

Autoclave conditions : 0.5 MPa, 50°C for 15 min

Sample Size : 158 × 98mm

Pol.	OCA	初期	500h	1000h
NSPZ -HDZQ	CS98210U			
	CS9826US			
	Competitor-A			
	Competitor-B			

# Polyen test 95°C non Preheat

## Test structure






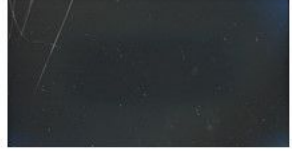

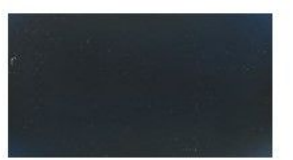




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Sample Size : 158 × 98mm

Pol.	OCA	初期	500h	1000h
NSPZ -HDZQ	CS98210U			
	CS9826U			
	Competitor - A			
	Competitor - B			

# Polyen test 95°C Preheat (85°C×1.5H)

## Test structure







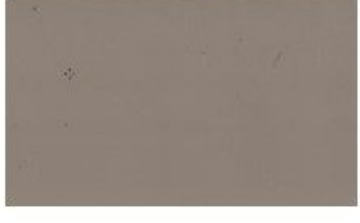
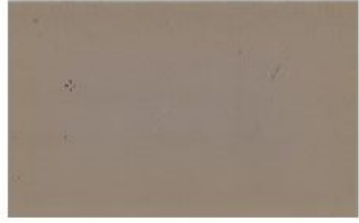

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OCA
NSPZ-HDZQ
Glass

Glass : Soda-lime glass(0.7 mmt), MATSUNAMI GLASS IND., LTD.

Test Piece size : 50mmx100mm

Autoclave conditions : 0.5 MPa, 50°C for 15 min

Sample Size : 158 × 98mm

Pol.	OCA	初期	500h	1000h
NSPZ -HDZQ	CS98210U			
	Competitor - A			
	Competitor - B			

# Polyen test 95°C Preheat (85°C×1.5H)

## Test structure










Glass
OCA
NSPZ-HDZQ
Glass

Glass : Soda-lime glass(0.7 mmt), MATSUNAMI GLASS IND., LTD.

Test Piece size : 50mmx100mm

Autoclave conditions : 0.5 MPa, 50°C for 15 min

Sample Size : 158 × 98mm

Pol.	OCA	初期	500h	1000h
NSPZ -HDZQ	CS98210U			
	Competitor - A			
	Competitor - B			

# Reliability of CS982 series



## Test piece



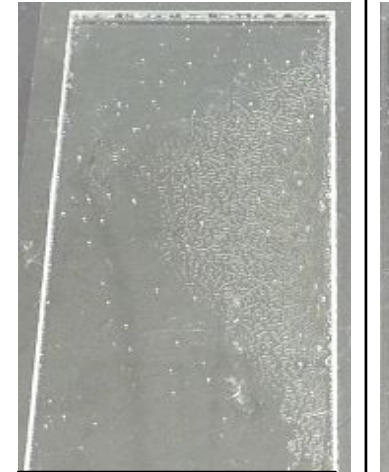

Glass : Soda-lime glass(0.7 mmt), MATSUNAMI GLASS IND., LTD.

NF2000 VUNS2: Polycarbonate plate (1.5mmt), MITSUBISHI GAS CHEMICAL, INC

Test Piece size : CS98210U:90mmx160mm,Competitor:40 mm x 90mm

Autoclave conditions : 0.5 MPa, 50°C for 15 min

NF2000 1.5mmt
CS98210U
Glass 0.7mmt

Test piece	NF2000 / CS98210U / Glass		NF2000 / Competitor / Glass	
Test condition	95°C 1000hr	85°C/85% RH 1000hr	95°C 1000hr	85°C/85% RH 1000hr
Results	No bubble(3/3)	No bubble(3/3)	Many bubble(3/3)	Many bubble(3/3)
Picture	 CS98210U	 CS98210U	 Competitor	 Competitor

**CS98210 showed good reliability for Glass and PC.**