Oca storage modulus

Why do we need a high T G & modulus for foldable OCA?
The low T g and fixed modulus at operating temperature range are required to foldable OCA,while it secures high adhesion strengthto the plastic substrate. Some high T g and functional monomers used for the increase of adhesion strength have a limit to be used because of its high T g and modulus.

What is the difference between foldable Oca and standard OCA?
Compared to standard OCA,the foldable OCA's low modulusis suitable for foldable equipment,and the improved foldable OCA has the modulus of 10-100 kPa even at high temperatures by preventing modulus decrease at high temperature. The decrease of modulus causes poor adhesion and mechanical durability in high temperature.

Which OCA has a lower storage modulus?
3M CEF35 has a lower storage modulusthan that of 3M OCA 8211 and exhibits a more elastic behavior as indicated by its lower tan(delta) value (Table 1) than that of 3M OCA 8211. The simulation was repeated for these two layups bonded either by 3M Foldable OCA CEF3501 or by 3M OCA 8211,both 25 microns thick.

Why is OCA used in flexible display?
Summary In the flexible display,OCA is used for protecting TFT,TFE,and OLEDin addition to the existing roles in the flat display. The low T g and fixed modulus at operating temperature range are required to foldable OCA,while it secures high adhesion strength to the plastic substrate.

Why is 3m foldable Oca better than standard OCA?
In reality,the lay-up construction (modulus and thickness of each layer),in addition to assembly (such as tension during the lamination process) of the test specimen or display stack will influence stress profiles. 3M Foldable OCA has a lower modulus over a wide range of operating temperatures,as compared to standard commercial OCAs.

What is the difference between 3 m foldable Oca and 8180 OCA?
The first one is 3 M foldable OCA and has lower modulus and higher elasticity,and the other one is 3 M OCA 8180. The softer OCA,3 M foldable OCA,contributes less bending stress of display panel and less tensile strain of OLED layer than the other OCA. Also,they show buckling due to residual strain after unfolding.

To meet these mechanical requirements, the OCA must be highly elastic (to avoid deformation). It must also demonstrate a low shear modulus (i.e., it should mechanically decouple the layers from each other in bending) but retain a high interfacial adhesion over a wide ...

Because, as presented in Figure 7, T g is shown at the primary reduction of storage modulus, lowering T g can result in modulus reduction below the operating range. Since the temperature affects ...

Oca storage modulus

storage modulus,?,,, !

(1) (Young"s Modulus):,?s()=E*e(),s,e,E,, ...

G" is loss modulus. G" is storage modulus. 300Z200B ????? o5 The viscoelasticity properties of mid-layer for various temperature is as follow. ????? ...

To assess the high- and low-temperature reliability of the UV-blocking OCA film, we examined the viscoelastic behavior of the OCA film across various temperatures. 61 The storage modulus (G"), loss modulus (G""), and damping factor (tan d) were measured by a rheometer through a temperature sweep ranging from - 20°C to 85 ? (Supplementary ...

At low temperatures, the storage modulus value (G? = 150.3 kPa at -20 °C) was found to be slightly higher than that of CEF 3602 (G? = 115.0 kPa at -20 °C), yet it still meets the ...

Tan delta is a the ratio of loss modulus to storage modulus and is a means of determining the ability of a material to dissipate energy (Sorbothane 2015) A master curve of the material can be used to determine, evaluate, and compare different (L)OCA materials (Pocius 2002). In addition, coupon-level testing can be performed to assess variation ...

G" (storage modulus) G"" (loss modulus) tan delta i(Viscosity), Eta Thixotropic-loop Creep and recovery Rheometer (AR) ??? ???????? ?? ??? ??? ?? ??? ??? ???, ??? rubber ?? ??? ??? ?? ?? ...

Given that the optically clear adhesive (OCA) is the only flexible component and interfacial layer that plays an important role in allowing flexibility in rollable displays, we investigated its...

For viscoelastic model calibration, the dynamic mechanical analysis (DMA) test can be performed to produce master curves of the storage modulus and loss modulus of OCA ...

High adhesion strength and close storage and loss moduli to commercial OCAs. High optical transparency, low Tg, and rapid strain reversibility. Large strain strategy leads to ...

(OCA),?,,OCA?,?

Assuming that the OCA is thermorheologically simple, the storage modulus curves can be obtained by converting frequency coordinates to time coordinates at different temperatures. ...

The storage modulus value of the whole PSA sample containing both high and low cured region does not show a very large difference between samples, but shows a clear trend: the storage modulus of each patterned sample (Fig. 3) tended to increase with increasing curing density in one region. Dividing the PSA into two same-sized regions while ...

Oca storage modulus

Assuming that the OCA is thermorheologically simple, the storage modulus curves can be obtained by converting frequency coordinates to time coordinates at different tem- peratures.

has a lower storage modulus than that of 3M (TM) OCA 8211, and exhibits a more elastic behavior as indicated by its lower Tan delta value (Table 2) than that of 3M (TM) OCA 8211.

In a direct bonded display, the (L)OCA can act as a dampener. This dampening can be attributed to the tan delta of the (L)OCA at relevant drop frequencies. Tan delta is the ratio of loss modulus to storage modulus and is a means of determining the ability of a material to dissipate energy (Sorbothane 2015).

In developing an organic light-emitting diode (OLED) panel for a foldable smartphone (specifically, a color filter on encapsulation) aimed at reducing power ...

?(? ? """ "" "? ,, ...

However, commercial biaxial and pure shear tests cannot accurately obtain the OCA behavior due to its low modulus and hyper-viscoelasticity behavior under low input strain [30]. Therefore, this study focused on developing new acrylic-based OCAs for use in flexible electronics, specifically for foldable and electronic displays.

Assuming that the OCA is thermorheologically simple, the storage modulus curves can be obtained by converting frequency coordinates to time coordinates at different temperatures. The DMA dynamic experiment results at different temperatures are as shown in Figure 11, where the storage modulus presents a decreasing trend over time. When the ...

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adhesion has been studied, and the range of storage modulus (G?) and loss modulus (G?) is suggested as a viscoelastic window [3, 16-19]. The surface free energy can represent the chemical characteristic of PSA. Wettability between PSA and sub-strate is determined by the relation of surface free energy of PSA and substrate. The

Assuming that the OCA is thermorheologically simple, the storage modulus curves can be obtained by converting frequency coordinates to time coordinates at different temperatures. The DMA dynamic experiment results at ...

As seen in the aforementioned results, the relatively low molecular weight urethane-acrylate type OCA exhibits a low modulus of 0.7 MPa in the high-frequency region (~10 3 Hz). ...

Oca storage modulus

Storage Modulus [Pa] 10 102 10 104 Tangent delta Loss Modulus [Pa] Loss modulus Storage modulus ????????· ????· ???? ??????????? ????: 1588-1574 1E-3 0.01 0.1 Shear rate [1/s] 1 10 100 1000 273 ...

Compared to standard OCA, the foldable OCA"s low modulus is suitable for foldable equipment, and the improved foldable OCA has the modulus of 10-100 kPa even at ...

The optical clear pressure-sensitive adhesive, crosslinked by three flexible crosslinkers, exhibits a low glass transition temperature (-60 to -40°C) and a low storage modulus (<0.1 MPa), along with an appropriate 180° stripping force (6-8 N/25 mm).

Elastic modulus of acrylic OCA (Ac-OCA) and silicone OCA (Si-OCA) When it comes to the electronic applications that require dynamic performance, such as flexible ...

The optically clear adhesive (OCA) ... (both tan d and storage modulus) for the BCP/tackifier blends, considering the time-temperature superposition principle, and for the laminate structures. ...

The complex mechanical behavior of OCA should be studied, as it is related to the aforementioned problems. ... found that both the initial stress and the storage modulus significantly decreased as ...

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