

Flexible & Robust Liquid Crystal Displays

Liquid crystal device resistant to external pressure

Overview

- In a conventional liquid crystal display(LCD), when a large pressure is applied from the outside or a steep bending deformation is forced, **the display image is disorderd cause of thickness variation of the liquid crystal layers,** and **the substrate spacer is damaged.**
- Therefore, **liquid crystals are difficult to apply to flexible displays** because of such problems.
- The invention packs **a liquid crystal material into robust microtubes** and **arranges them in a plurality** to form a liquid crystal layer.
- Using such a structure, **pressure force can be dispersed** even when pressure is applied from the outside.
- It is expected to be applied to **a robust and flexible liquid crystal display.**

Product Application

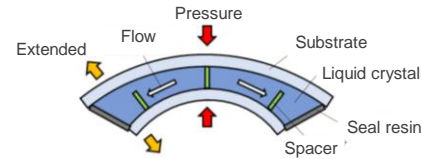
- ❑ Displays requiring flexibility and robustness
 - Rollable, flexible smartphones, tablets
 - Large rollable LCD display for advertising
 - Table-surface display on which various things can be placed, and floor-top display that doesn't disturb when a people rides on it

IP Data

IP number : Not published
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 Admin No. : T23-063

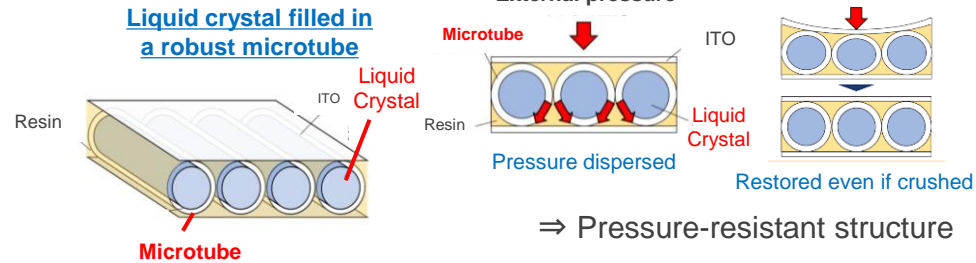
Features·Outstandings

<Conventional problems>

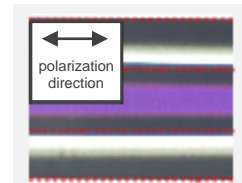


- Problems when bending the LCD
- The image is disordered.
 - Spacers are broken.

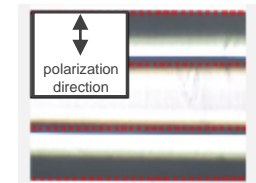
<Invention>



⇒ Pressure-resistant structure



Absorption for polarized light



Transparency for polarized light

Spontaneous molecular alignment of liquid crystal (with anisotropy dye) inside the microtube

(No change after the load is applied)s

< Application > *1



Rollable large LCD



Flexible display



Using on the floor Flexible display

Contact

*1 Fujikake Laboratory <https://www.ecei.tohoku.ac.jp/fujikake/menu.htm>

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