

BMW ix Flow- The colour-changing car- A design innovation

BMW ix Flow is premiering in Las Vegas. It is a colour changing car, a bold statement in the design world. The body of the car changes colours at the touch of a button. The body contains various microcapsules laminated within an electrophoretic film. These microcapsules of the diameter of a human hair, contains various colored materials which get illuminated on the application of the electric field. This creates an electronic paper display.

Electronic paper display also sometimes called as electronic ink or electrophoretic display is an output device which mimics the appearance of ink on paper. The electronic paper concept was first introduced by Nick Sheridan in 1980s at Palo Alto Research Centre of Xerox. The first electronic paper was called Gyricon and consisted of polyethene microcapsules. These microcapsules also known as Janus were embedded in a silicon sheet and suspended in oil so that they could rotate freely. The two sides of the microcapsules contained black and white colour. Each side had opposite polarity. On application of electric field one of the sides showed up.

Later on, with the development of electrophoretic technology, titania particles (titanium dioxide) microcapsules were introduced which were suspended in hydrocarbon oil between the plates. On application of voltage, the microcapsules migrated electrophoretically to the plate that contained opposite charge of the particles.

The same concept has been used for colour changing in BMW iX Flow

In terms of biomimicry, we find the closest resemblance between this car and colour-changing lizards. This project has opened up new avenues for innovations in transport vehicles design and so on. Now, matching the car colour to one's moods and the climate outside is damn easy.

References

https://en.wikipedia.org/wiki/Electronic_paper#Microencapsulated_electrophoretic_display

<https://www.bmw.com/en/events/ces2022/ixflow.html>

<https://strate.in/blog/bmw-ix-flow-the-revolutionary-color-changing-car/>

