

TECHNICAL REPORT

Good news for customers who want to use unique gloss feeling like a pearl to express luxuriousness in their products!

Express luxuriousness with unique gloss feeling like a pearl

STELLA Ink (high luminance pearl ink)

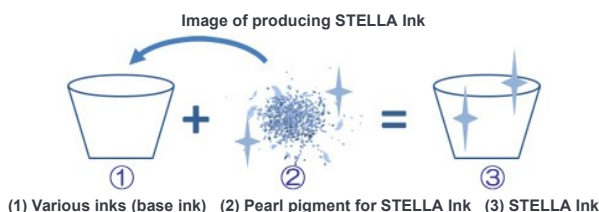
High luminance pearl ink with a unique gloss feeling and soft hue that change depending on the view angle realize luxuriousness.



1. STELLA Ink expressing luxuriousness like a pearl

What is STELLA Ink (high luminance pearl ink)?

STELLA Ink is the high luminance pearl ink with a unique gloss color whose hue changes like a pearl depending on the view angle. Soft hue and unique glittering gloss feeling like a pearl realize luxuriousness that general colors cannot express. STELLA Ink is the high luminance pearl color ink created by mixing pearl pigment for STELLA Ink with various inks.

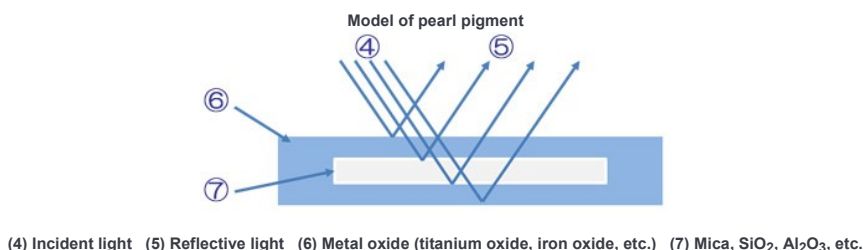


Coloring principle of the pearl ink

A Natural pearl is constructed by laminating two types of transparent layers (protein and calcium carbonate) that have different refractive indexes. Therefore, incident light reflects regularly and multiply at the boundary between two transparent layers which have different refractive indexes and these reflective lights interfering with each other provide a unique interference color and gloss natural pearls have.



Layered structure of the pearl surface of the pearl pigment is reproduced by low refractive index such as mica, SiO₂, Al₂O₃ and high refractive index metal oxide. Interference colors and luminance can be adjusted depending on the layered structure, particle size and density.



2. Excellent features of STELLA Ink (high luminance pearl ink)

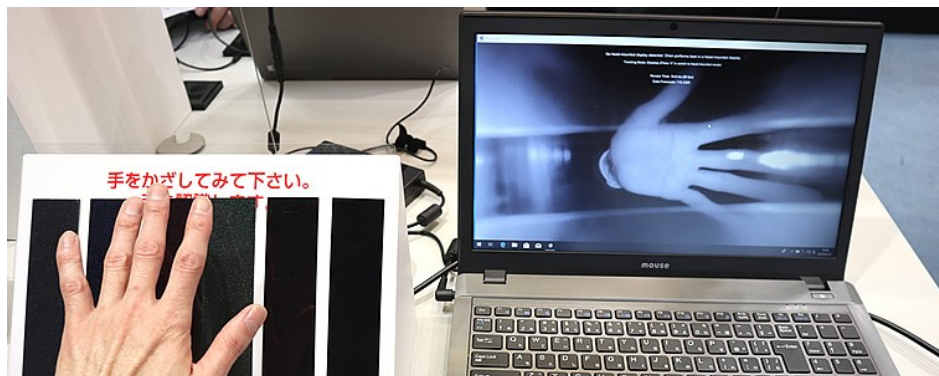
STELLA Ink has both excellent decorativeness and high functionalities

STELLA Ink has a good balance of decorativeness with luxuriousness like a pearl and functionalities such as printability and IR transmission function.

Excellent features	Description
Realization of high luminance and luxuriousness	Owing to pearl pigment with smooth surface and less irregular reflection, high luminance can be obtained. This high luminance enhances interference of light and realizes luxuriousness like a pearl with a unique hue.
Applicable to various inks	High luminance pearl colors can be set with solvent inks and UV inks including High Definition Inks.
Applicable to printing with high mesh stencil (pigment particle size is adjustable)	Pearl pigment can be set from a smaller diameter (5 to 50 μ m) than before, and achieve a sharp particle size distribution with less variation. It enables printing with a high mesh stencil, high quality printing and fine adjustment of layer thickness.
Realization of pearl color with higher accuracy by combining with High Definition Ink	STELLA Ink originally has less unevenness in pearl density and orientation, but by adopting High Definition Ink as base, it enables high accurate pearl color with much higher level of uniformity.
Affluent expression (Note)	Various expressions are possible depending on the standard color, particle size, density and other printing conditions of pearl pigment. (Note: Some pearl colors may be difficult to produce according to conditions. For details, please consult us.)
Glittering colors and IR transmission function (infrared transmission function)	Metallic inks which use lightproof metal pigment were difficult to add IR transmission function. However, STELLA Ink enables both glittering colors and IR transmission function (the details are described later section).

High luminance pearl with both unique gloss colors and IR transmission function

STELLA Ink enables both decoration with high glittering luminance and IR transmission function. The following photograph shows an example of the motion sensor decorated with STELLA Ink that has IR transmittable function is detecting hand movements.



Realization of concealing printing by high luminance pearl ink

STELLA Ink also can add visible light transmission function which is an application of IR transmission. The following photograph shows an example of concealing print by combining visible light transmission function and backlight. (Right photograph shows when backlight is on and red circles are the areas where concealing print is applied.)



3. Application example of STELLA Ink (high luminance pearl ink)

Example of applying STELLA Inks to decoration on molded articles

Glossy feeling of STELLA Ink makes 3D object shadows stand out and creates sharp 3D effect with luxuriousness.



Example of both decorating and cost reduction by roll coater printing

Printing STELLA Ink by roll coater can increase decorativeness of 3D objects and reduce costs by reducing processes.



Example of color variations of STELLA Inks

The degree of glittering can be adjusted depending on the standard color, particle size and density of pearl pigment. In addition, coloring effect will increase on the black base color, and unique finishing can be obtained on the silver or red base color. Decoration with STELLA Ink can create various expression by combining with pearl pigment, base ink and base color. (Photograph shows an example of realization of both color variation and IR transmission function.)

