

Photoluminescent Pigment TDS **Pigments distributed by Bastion Paint**

1. Basic Overview

Photoluminescent Pigment is an Inorganic Luminophor that glows-in-the-dark after absorbing energy from light. The absorption of photons of light excites electrons into higher energy levels and when they later return to their lower energy state they emit visible light which appears as a glow in dark environment. Various Glow-in-the-dark colours are available with green having the brightest glow.

There is not nuclear decay involved and the pigments are thus not radioactive.

The useful glow time is 12 hours after being fully charged. The glow strength starts off brightest and then decreases over time. An initial very bright glow period usually only lasts a few minutes. After a few hours the environment needs to be very dark for the glow to be effective.

The pigments can be recharged as many times as required and provided the pigment is protected from certain chemicals they do not lose much glow strength for 20 years. The pigment is UV stable so can be used outdoors.

2. Applications

Usually the pigments are used in clear paint, inks, resins, plastics etc. where they are bound into a solid medium and protected from chemicals. Some powders (specifically those we label as “for resin”) should not contact water. They will absorb water and stop glowing.

The pigments should not be added to mediums that do not dry transparent as glow efficiency will be lost.

The pigments need to be mixed fairly well into the medium being used so that a uniform distribution is achieved. Care must be taken not to subject the pigments to high shear or excess mixing as the waterproof coating on the “Universal Pigments” will be damaged and the pigments will absorb water and stop glowing.

Pigment settling may take place quite quickly in lower viscosity mediums. In these cases regular mixing will be required.

Customers need to test these pigments in their specific applications. To check for long term stability in wet mediums (e.g. inks or paints that are to be stored before use), long-term testing is required.

3. Chemical Classification

These pigments fit into the Harmonised Tariff Code Category of both 3206.42 and 3206.50

They have CAS number: 12004-37-4

They are not radioactive.

Chemical Formula: $\text{SrAl}_2\text{O}_4:\text{Eu}$

Chemical Name: Strontiumaluminate, Europium-doped

By Weight

$\text{SrAl}_2\text{O}_4:\text{Eu}$ 100%

Trace Elements less than 0.1%

Any impurities present are accidental, very minor and of no consequence.

The atomic components making up the final molecule are as follows:

Strontium (SR): Atomic number 38, Relative Atomic Mass 87.62

Aluminium (Al) Atomic number 13, Relative Atomic Mass 26.98

Oxygen (O) Atomic number 8, Relative Atomic Mass 16.00

Europium (Eu) Atomic number 63, Relative Atomic Mass 151.96

4. Properties

SrAl_2O_4 is a solid odorless, nonflammable, pale yellow, monoclinic crystalline powder, heavier than water. It is chemically and biologically inert. In this compound it is activated with a suitable dopant europium, and is thus labeled $\text{SrAl}_2\text{O}_4:\text{Eu}$, it acts as a photoluminescent with long persistence of luminescence.

5. Individual Products

Green for resin

- Average particle size is 40 microns.
- Water sensitive so cannot be used in water-based mediums.

Green: Water Based

- Average particle size is 60 microns.
- Can be used in water-based, solvent-based and resin mediums.

Sky Blue (Universal)

- Average particle size is 55 microns.
- Can be used in water-based, solvent-based and resin mediums.
- Does not glow as brightly as the green pigments.

XL Green for Resin

- Average particle size is 250 microns.
- Water sensitive so cannot be used in water-based mediums.
- Brightest glowing of all pigments