



Zinc sulfide (ZnS), a naturally occurring salt, is the main source of zinc. It has two common crystalline forms (polymorphs): Sphalerite (“zinc blende”), with a cubic crystal structure, is the form that predominates in nature. Wurtzite, with hexagonal crystals, is scarcer, but it can be made by heating sphalerite to $\approx 1020\text{ }^{\circ}\text{C}$.¹

In nature, both ZnS polymorphs usually contain significant amounts of iron that makes them appear black. The purified salts are white-to-pale yellow or gray. The most common use of ZnS is as a pigment for paints, plastics, and rubber. Lithopone, a mixture of ZnS and barium sulfate (BaSO_4), is a widely used pigment for low-gloss paints.

ZnS is phosphorescent, which makes it useful for several electronic and decorative applications. Among its earlier uses were X-ray and television screens and clock and watch dials. In this age of nanotechnology, ZnS frequently forms the shells of semiconductor quantum dots, with cadmium selenide (CdSe) as the cores.

Phosphorescent, nontoxic ZnS makes it ideal for use in “glow-in-the-dark” cosmetics. The US Food and Drug Administration approved it for this use in 2000. According to FDA, [“It’s the only luminescent color approved for cosmetic use, and it’s not for every day and not for near your eyes. You can recognize it by its whitish-yellowish-greenish glow.”](#)

This Halloween you can thank ZnS for allowing you scare people when you wear your ghoulish, glowing face paint.