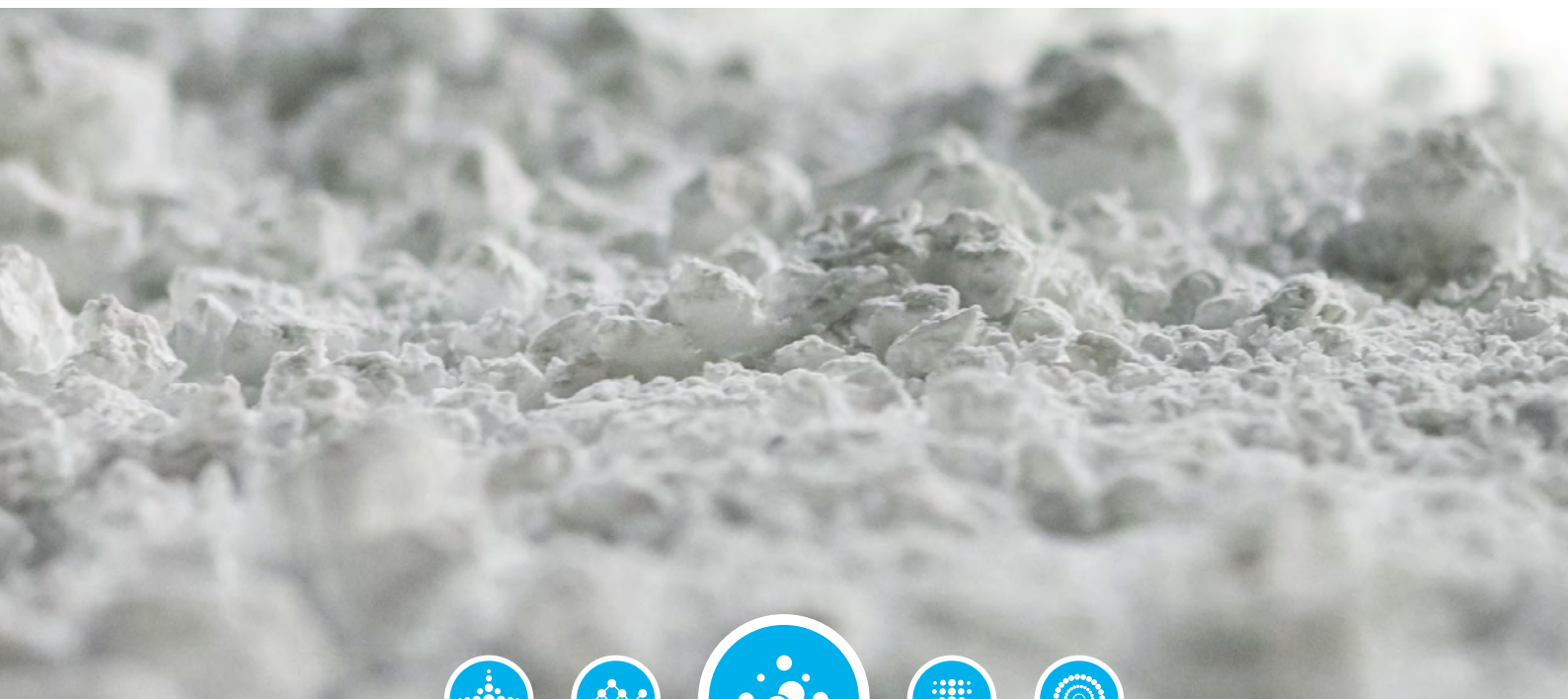


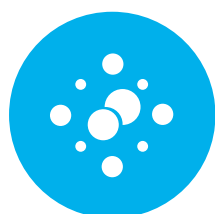


Leuchtstoffwerk Breitung GmbH

Zinc sulphides

HIGHEST PURITY FOR DEMANDING JOBS





Zinc sulphides at a glance

DESIGNATION

Zinc sulphide applications

Phosphor grade zinc sulphides

Pigment grade zinc sulphides

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We manufacture zinc sulphides (ZnS) in industrial high-tech production facilities with a maximum purity of up to 99.99%. Precise control processes bring our zinc sulphides to the optimal particle-size distribution for the specific application. They are also the precursor material for manufacturing our phosphors and are sold in demanding industries worldwide.

We follow especially strict protocols and confine production to a separate part of the building to avoid cross-contamination with other chemicals or phosphors. Customers from the semiconductor, polymer technology and chemical industries as well as manufacturers of optical materials and users of phosphors have relied on our innovative spirit and the premium quality of our zinc sulphides for many decades.

The core range of zinc sulphides we produce currently covers the following specifications:

- High-purity 99.99% phosphor grade zinc sulphide for manufacturing phosphors
- Ultra-fine, odour-free pigment grade zinc sulphide as a white coating pigment (d_{50} to $< 1 \mu\text{m}$) and for processing into polymers.





Phosphor grade zinc sulphides

Phosphor grade zinc sulphides are characterised by their very high purity of 99.99% and their optical transparency in a wide spectrum of wavelengths. The high degree of purity is necessary for manufacturing sputtering targets for PVD processes (physical vapour deposition) and phosphorescence materials or rather afterglow pigments.

Our zinc sulphides have special optical properties that make them transparent across wide ranges of the infrared spectrum used in technical applications. For this reason, our phosphor grade zinc sulphides are increasingly being used in infrared optics, like infrared cameras and safety glass.

These types of zinc sulphides are also used in the production of electroluminescent phosphors, a similarly demanding application area.



- Vapour deposition materials for sputtering
- Manufacturing thin protective layers
- Coating of spectral selective components
- Development and production of special phosphors

General information

Name:	Phosphor grade zinc sulphides
Formula:	ZnS
Application:	Precursor material for the production of phosphors and targets

Physical properties

Pigment:	Yellowish white
Particle size distribution:	ZnS, ZnS/F: non-monomodal, ZnS/2: monomodal
Specific density:	4.1 g/cm ³
Crystal structure:	Cubic, F -43m (SG: 216)

Technical specifications phosphor grade

ARTICLE NO.	DESIGNATION	PARTICLE SIZE		
		Ød ₁₀ (µm)	Ød ₅₀ (µm)	Ød ₉₀ (µm)
2010010	ZnS phosphor grade	5.0	10.5	20.0
2010020	ZnS/F phosphor grade	4.8	10.0	24.0
2010040	ZnS/2 phosphor grade	5.5	7.5	10.5

The data of this publication result from a large range of tests and are considered to be typical values. Pretensions to guarantee cannot be deduced from it.





Pigment grade zinc sulphides

Pigment grade zinc sulphides are used as white pigments due to their high reflectance in visible light and near-ultraviolet ranges. They provide a neutral white shade with optimal light scattering, very good covering opacity for coatings and excellent brightening of plastics.

Compared to materials like titanium dioxide, zinc sulphides are more transparent in the UVA range. Pigment grade zinc sulphides are also used to improve UV curing of ceramic materials. Our zinc sulphides are toxicologically safe and can therefore be used in many different applications.

- Use as white pigment for processing polymers, fibre optics and plastics
- Improvement of the UV curing process for inks and coatings
- Improvement of the performance of anti-corrosion coatings
- Increase in the thermal conductivity of electronic components
- Coating of fibre optics in medical technology
- Components in lubricants for automotive, railway, marine and wind-power applications



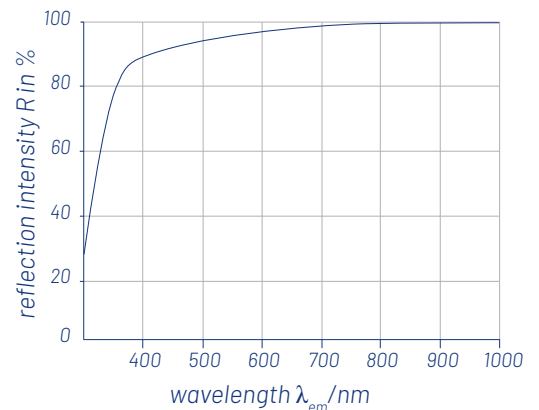
Standard products can be modified quickly and easily with no minimum orders. We are pleased to adapt our products to our customers' specific application requirements for particle size or doping at any time.

General information

Name:	Pigment grade zinc sulphides
Formula:	ZnS
Application:	Additives in pigments, lubricants and plastics for master batches and compounds, heat dissipation of electronic components

Physical properties

Pigment:	white
Particle size distribution:	monomodal
Specific density:	4.1 g/cm ³
Crystal structure:	Cubic, F -43m (SG: 216)
pH value:	2P, 5P, 10P ≈ 6.5 , 10P-D ≈ 7.7



Technical specifications pigment grade

ARTICLE NO.	DESIGNATION	CIE COLOR SPACE			$\varnothing d_{10}$ (μm)	PARTICLE SIZE	
		L*	a*	b*		$\varnothing d_{50}$ (μm)	$\varnothing d_{90}$ (μm)
2010050	ZnS/2P	96,6	-0,91	3,37	5,5	7,5	24,0
2010060	ZnS/5P	98,0	-0,54	2,55	0,7	1,8	5,0
2010080	ZnS/10P	96,8	-0,50	3,29	0,2	0,8	1,7
2010090	ZnS/10P-D**	95,9	-0,28	2,60	0,2	0,8	1,7

The data of this publication result from a large number of testings and are considered to be typical values. Pretentions to guarantee cannot be deduced from it. We are pleased to adapt our products to our customers' specific application requirements. The L*, a*, b* values were determined with HunterLab ColorFlex EZ. **Particles equipped with organic coating.





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