

**FILTERSORB
FILTRATION**

ADSORPTION

INSTANT PRODUCTS

OXY TREATMENT

SYSTEMS

FERROLOX® FeO 50

POWDERED IRON OXIDE-HYDROXIDE

INTRODUCING //

FERROLOX® FeO 50 - WHERE SULPHIDE BECOMES STABLE

Ferrolox® FeO 50 is a finely ground iron oxide-hydroxide powder, supplied as a free flowing powder with a mean particle size of approximately 50 µm. It removes and permanently binds hydrogen sulphide and dissolved sulphides in anaerobic digestion, biogas and landfill gas plants, and in municipal and industrial wastewater treatment.

**RAPID SULPHIDE
PRECIPITATION.**

**RELIABLE GAS
PROTECTION.**

With an active content of 80 to 85 % and approximately 51 % iron, **Ferrolox® FeO 50** delivers a high reactive iron load per tonne supplied, so dosing volumes and handling remain low. **Ferrolox® FeO 50** does not contain any synthetic chemical, and hazardous additives. It is classified as non-hazardous, needs no special handling licence, and is dosed with standard dry powder equipment. **Ferrolox® FeO 50** works alongside existing biological desulphurisation, scrubbing or activated carbon, and substantially extends the life of any downstream polishing stage.



APPLICATIONS //

Ferrolox® FeO 50 is used wherever sulphide has to be removed, bound or prevented from forming.



Landfill
gas



Sewage sludge
digestion



Industrial
anaerobic
treatment



Odour control
in sewer
networks



Phosphate
binding and
struvite control



Sludge
and soil
stabilisation



PREMIUM QUALITY
MADE IN GERMANY

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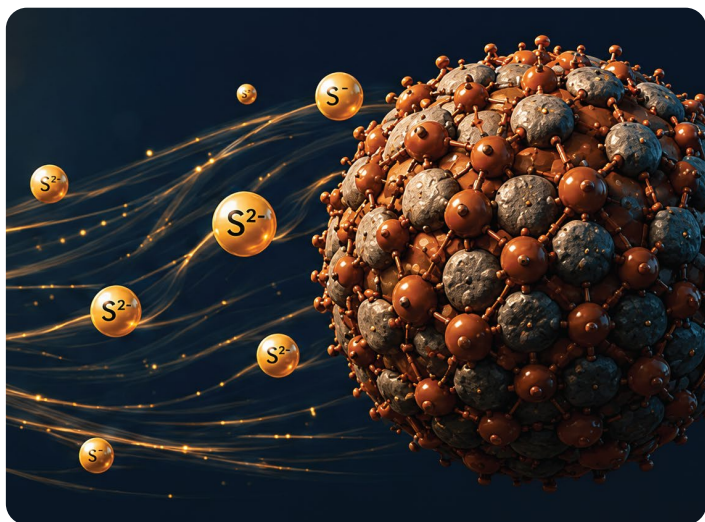
PRINCIPLE OF OPERATION

CAPTURE SULPHIDE BEFORE IT BECOMES H₂S GAS

Ferrolox[®] FeO 50 removes sulphide by chemical precipitation. Trivalent iron in the oxide-hydroxide lattice is reduced by sulphide under anaerobic conditions, forming insoluble iron sulphide and elemental sulphur:



The iron sulphide formed is insoluble and chemically stable, so sulphide is held in the liquid phase and prevented from partitioning into the gas. The reaction is fast at both mesophilic and thermophilic temperatures and is not inhibited by ammonia, volatile fatty acids or high organic loading.



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Because the mechanism is chemical rather than biological, removal is immediate and unaffected by load swings, feed-stock changes or biological recovery times. This is the decisive advantage where raw gas H₂S is variable.

SULPHIDE CAPTURED. GAS PROTECTED.

MAIN APPLICATION

SULPHIDE CONTROL IN ANAEROBIC DIGESTION

Ferrolox[®] FeO 50 is dosed directly into the digester, binding sulphide at source before it can enter the gas phase. Compared with gas phase treatment alone this offers several advantages.

- The whole downstream gas train sees a lower and far more stable H₂S concentration.
- No additional vessel, no gas side pressure drop and no bed change-out. The powder is dosed with simple screw or slurry equipment.
- Free sulphide inhibition of methanogens is reduced, which commonly improves specific gas yield and digester stability.
- Corrosion of digester internals, gas holders, pipework, gas engines and heat exchangers is reduced.
- Residual iron in the digestate binds phosphate, reducing struvite scaling in pipework, heat exchangers and dewatering equipment.

DETERMINING THE DOSING RATE

The required dosing rate depends on the sulphide load actually removed, which varies with substrate composition, sulphate content, digester retention time and the performance of any desulphurisation stage already installed. For this reason we do not publish a single consumption figure.

We calculate the requirement individually for each plant from the biogas flow, the raw gas H₂S concentration and the target value at the gas outlet, and confirm it during the first weeks of operation. Please send us your plant data and we will prepare the calculation.

DOSING PRACTICE

Ferrolox[®] FeO 50 is dosed either as a dry powder into the substrate feed or as a pre-mixed slurry into the digester recirculation line. Dosing should be continuous rather than in batches, since a steady iron residual gives the most stable gas quality. We recommend starting at the calculated rate, monitoring H₂S at the gas outlet daily for the first two weeks, and then trimming the rate to hold the target concentration.

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TECHNICAL DATA

Property	Value	Unit
Appearance	Brownish black powder	–
Active content (Fe ₂ O ₃ + FeO(OH))	80 to 85	%
Iron content, as Fe	approx. 51	%
Mean particle size (d ₅₀)	approx. 50	µm
Particle size distribution	min. 99 passing 74 µm (200 mesh)	%
Loss on ignition	max. 1.0	%
Oil absorption	18 to 20	ml / 100 g
Hardness (Mohs)	5	–
Hazard classification	Non-hazardous	–

Every lot is supplied with a Certificate of Analysis covering active content, loss on ignition and particle size.

HANDLING, STORAGE AND SAFETY

Ferrolox[®] FeO 50 is a non-hazardous fine powder. Standard dust precautions apply: dust mask, eye protection and gloves, with dosing equipment enclosed or extracted.

Store dry, in closed bags, off the ground and protected from rain. Under these conditions the shelf life is at least 24 months and the material does not cake or lose activity.

Spent material in the digestate contains iron sulphide, which can oxidise exothermically once dried solids are exposed to air. Dewatered digestate should be kept moist and not allowed to accumulate in confined, unventilated spaces. Full details are given in the Safety Data Sheet supplied with every delivery.



Standard Packaging

Packaging	Bags per pallet	Net weight per pallet	Pallets per LKW with in EU
25kg Paper Bags	40 Bags	1,000 kg	920 Bags (23 Pallets)

Pallets are shrink wrapped and suitable for outdoor handling during loading. Alternative bag weights and big bags can be supplied on request. Supplied with each consignment: Technical Data Sheet, Safety Data Sheet, Certificate of Analysis for the delivered lot and all the required shipping documents.

