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## Application information

### FerroSorp<sup>®</sup> DG

#### Desulphurication substance for the removal of hydrogen sulphide in anaerobic processes

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FerroSorp<sup>®</sup> DG is a powdered desulphurication substance, based on ferric(III)-oxidhydrat FeO(OH). It is used to bind hydrogen sulfide within the anaerobic reactor.

Hydrogen sulphide arises during the anaerobic reduction process e. g. the production of biogas, the precipitation of municipal sludge and during the anaerobic treatment of highly loaded organic industrial wastewaters.

With the development of FerroSorp<sup>®</sup> DG operators, of the aforementioned systems can now employ a highly active and economical reagent to remove hydrogen sulphide from their biogas plants.

### Application

FerroSorp<sup>®</sup> DG can be applied with great advantage in each of the following areas:

- production of biogas:
  - fermentation of waste
  - anaerobic dissipation of dung, poultry dung, stable litter and other agricultural waste-products
  - fermentation of renewable raw materials (turnip, maize, sunflower etc.)
- precipitation of sludge in municipal waste-water purification plants
- anaerobic dissipation of sewages e.g. the food processing industry or in the paper manufacture

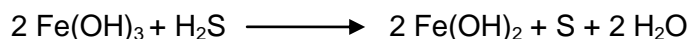
### Technical data

Chemical designation:	ferric(III)-oxidhydrate
Formula:	FeO(OH)
Condition:	deep brown powder
Bead diameters:	0 – 0.5 mm
Bulk density:	800 ± 50 g/dm <sup>3</sup>
Ferric contents:	360 g/kg

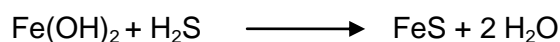
### Procedure

The bonding of hydrogen sulphide in anaerobic processes by the addition of ferric hydroxide can be described by the following chemical reaction equations:

1. Reduction of ferric (III) hydroxide to dissolved ferric (II) hydroxide



2. Reaction of ferric (II) hydroxide with hydrogen sulphide under formation of an insoluble, black coloured ferrous sulfide





The formed ferrous sulfide is an almost insoluble compound. Therefore, it is possible to reduce the hydrogen sulphide nearly to 0 ppm in the rot or biogas. For economic reasons it is recommended to dosage FerroSorp<sup>®</sup> DG not lower than 50 ppm H<sub>2</sub>S in the biogas because for lower values there are stoichiometrically disproportionate amounts necessary.

## Application

FerroSorp<sup>®</sup> DG should be evenly distributed within the digester and concentrations should be maintained at a constant level. In the case of biogas plants FerroSorp<sup>®</sup> DG can easily combined with the substrate. At other anaerobic sewage or sludge treating plants suitable locations for dosing can be selected. For mixing a pumpable suspension take water and FerroSorp<sup>®</sup> DG proportion 2:1. In this case FerroSorp<sup>®</sup> DG should be added in proportion to volume. Sufficient mixing in the digester is essential.

The binding of hydrogen sulphide is possible in both mesophilic and thermophilic processes.

## Transport and storage

FerroSorp<sup>®</sup> DG is a harmless product. There are no special regulations concerning storage and handling. Protect the paper bags against weathering. Opened packaging should be closed again to prevent the absorption of moisture and contamination. Take care of direct UV-radiation (sun); it can destroy the packaging made of synthetic material.

## Instructions for safety at work

Because FerroSorp<sup>®</sup> DG is a fine particulate, a dust mask should be worn when handling the product (type P2). Furthermore, all safety precautions and regulations that apply to chemicals should be observed.

## Form of delivery

Paper bags, three-layer, 20 kg, 1.000 kg per pallet  
Big Bags with bottom drain valve, 1.000 kg

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### Important note:

The prominent details are based on practical experiences and correspond to today's level of the technological development.

The guarantee applies to constant and faultless quality of the deliveries. You do not free the manufacturer from examinations and of your own tests because of the wealth of possible influences at processing and application of our products. A legally binding assurance of certain qualities or the suitability for a concrete intended purpose cannot be derived from our details. Possible protective rights as well as existing laws and regulations have to be taken into account by the receiver of our products in responsibility of his own.