



Application

Ferrosorp[®]DG should be evenly distributed within the digester and concentrations should be maintained at a constant level. It can be added in its dry form or in a suspension ratio of 2:1 water and powder, by volume. The ferrous sulfide formed by the process is an almost insoluble compound.

Packaging

- 40 lb (18 kg) biodegradable bags, 55/pallet
 Bulk density: 51 lb/ft³ (820 g/dm³)
- 2,200 lb (1,000 kg) supersacks with bottom funnel for dispensing



UNISON

SOLUTIONS

Hydrogen Sulfide, (H₂S): Why remove it?

- Flammable, colorless gas
- Odor of rotten eggs
- Corrosive to boilers and cogeneration equipment
- Toxic in low concentrations
- Reduces efficiency of siloxane removal media
- Reduce O&M and capital cost of equipment

What's the chemistry?

- 1. Reduction of ferric (III) hydroxide to dissolved ferric (II) hydroxide 2 Fe(OH)₃ + H₂S \longrightarrow Fe(OH)₂ + S + 2 H₂O
- Reaction of ferric (II) hydroxide with hydrogen sulfide under formation of an insoluble, black colored ferrous sulfide Fe(OH)₂ + H₂S → FeS + 2 H₂O



Leaders in Biogas Technology

This dairy operation in Exeter, Maine processes cow manure from 870 dairy cows and off-farm organic waste from a variety of sources. The biogas from the anaerobic digesters is used to fuel a 1 MW internal combustion engine for electricity production and heat recovery. Before treating the waste, the engine was seeing a build up of sulfur on the plate cooler, excessive wear on engine components and an increased frequency of oil changes.

- Inlet H₂S level: 600-1500 ppm
- Target H₂S level: 50 ppm
- Anaerobic digester capacity: 800,000 gallons
- Daily waste volume: 32,000 gallons
- Retention time: 27 days

For initial seeding of the digester, 15 bags per day for the first several days were added to establish the H_2S levels in

the digester. Before treatment began, the inlet H_2S level was 700 ppm using Sensidyne H_2S colorimetric tubes. Within 3 days of treatment the H_2S levels were measured at 50 ppm. A daily dose of 4 bags was recommended to maintain an outlet concentration of 50-100 ppm.

The site observed increased intervals between oil changes, decreased sulfur build up and no adverse reaction in the digester. The powder was easy to implement with no large up front costs.

This is a summary of a paper written by the Department of Biological and Environmental Engineering at Cornell University. Full reports may be viewed at <u>www.manuremanagement.Cornell.edu</u>

Inlet H ₂ S level	ppm
Target H₂S level	ppm
Gas flow rate	scfm
Maximum volume of the anaerobic digester	gallons
Quantity of material added to the digester each day	gallons
Retention time in the digester	days
Treatment that is currently being done to reduce $\ensuremath{H_2S}$ levels	
Contact name	Site name & location
Phone/e-mail	

How much powder would my plant need to reduce hydrogen sulfide?

Following is the information required to correctly size the desulfurization powder.

Please contact our sales group to discuss your needs. sales@unisonsolutions.com or 563-585-0967



sales@unisonsolutions.com

