



## **ESMS – MANURE DIGESTER AND ODOUR CONTROL**

**ESMS** is a non-bacterial concentrated formulation derived from natural plant extracts, and designed to stimulate microbial activity in both aerobic and anaerobic environments. The components in **ESMS** are selected both for their effectiveness in organic waste treatment and for their ability to accelerate the natural degradation process. A major benefit when using **ESMS** is in its ability to inhibit the activity of the enzyme urease, which facilitates the conversion of nitrogen and urea to ammonia.

The degradation process is regulated by temperature, moisture, material disturbance, organic matter and the size and activity of microbial populations. Accordingly, the effectiveness of **ESMS** is dependent upon conditions within the treatment environment.

Regulations pertaining to waste management require all wastes, including liquid manure runoff, to be contained. Earth Smart waste management products can allow MSW operators, feed lots, factory farms and close confinement animal facilities to address environmental issues associated with manure management and operate odour free, without soil or water pollution.

### **BENEFITS OF ESMS:**

- Environmentally Safe: derived from natural plant extract; no chemicals, dyes or fragrances.
- Non-toxic, non-caustic, non-corrosive, non-flammable
- Control odours before and during processing
- Can be incorporated into most waste management systems with minimum additional capital expenditures
- Reduce volumes up to 40% in solid waste applications
- Reduces ammonia levels
- Effective & easy to apply
- Unlike bacterial treatments, **ESMS** is not adversely affected by low temperatures

### **TYPICAL ESOC APPLICATIONS:**

- Close confinement animal operations
- Poultry operations
- Horse barns
- Livestock facilities
- Livestock transportation vehicles
- Sewage treatment facilities
- Sanitary landfills
- Meat processing plants
- Food processing facilities
- Garbage dumpsters & garbage chutes
- Composting facilities

## LIVESTOCK MANURE MANAGEMENT & ESMS:

- LIVESTOCK HOUSING:  
To reduce odour emissions, reduce fly and insect infestations and clean walls, floors, pens, cages etc., dilute at a rate of 1:20 to 1:100 and spray the affected area using a fine mist.
- MANURE HOLDING PONDS & LAGOONS:  
Initial Application: Dilute at a rate of 1:20 in water and blanket spray the entire surface of the lagoon.  
Maintenance Applications: Dilute at a rate of 1:20 to 1:100 in water and blanket spray the entire surface of the lagoon at 5 to 7 day intervals or as required.
- LAGOON INFLOW APPLICATIONS:  
Apply a onetime SHOCK DOSE of 10 to 15 PPM at the inflow. Wait 7 days and commence regular maintenance applications of 3 to 5 PPM as required.
- HOLDING TANKS & GUTTERS:  
To lift and liquefy sludge in storage tanks, dilute **ESMS** at a rate of 1: 20 to 1:100 in water and inject the diluted solution directly into the bottom sludge layer. Repeat at three to four day intervals until desired results are achieved. For continued odour control and sludge reduction, meter **ESMS** into the gutter wash water at a rate of 10 to 15 ppm.
- MANURE PILES:  
**ESMS** is effective in reducing or eliminating odour emissions and reducing fly and insect infestations in livestock manure piles. Application is relatively simple. Dilute at a rate of 1:20 to 1:100 in water and spray the manure as the pile is formed.

\*Typical application rate: 1 litre of diluted solution / m3 manure.

\*\*Application rates may vary depending on animal type, genetics, feed rations and environmental conditions\*\*

- FLOOR RAISED BIRDS:  
To reduce fly and insect infestations and control ammonia emissions from the litter during the critical 2 to 3 week period following placement of a new flock, dilute **ESMS** at a rate of 1:20 in water and surface spray the LITTER at a rate of 1 litre diluted solution / 15 m3 four to six days prior to placement of new flock. Normal heating and ventilation practices should be observed.

The following examples are intended to show the cost effectiveness of **ESMS** for odour control and manure management in hog and cattle operations. These numbers may vary depending upon type of ration, environmental conditions, management process, genetics etc.

Animal Costs For ESOC – Odour Control (per year)			
Animal Type	Animal weight (lbs.)	Annual Manure production (cubic meters)	Annual ESOC cost
Gestating Sow	275	1.53	\$0.56
Growers	65	0.70	\$0.26
Dairy Cow	1000	13.43	\$5.03
Beef	1000	9.76	\$3.61

**SAFETY:**

**ESMS** is produced in accordance with NOSB (National Organic Standards Board) guidelines. The materials used in the production process are derived from naturally occurring and sustainable sources and are consistent with organic principals and the National List of Allowed Substances. **ESMS** does NOT contain synthetic chemicals, animal components, and animal by products, manure or manure by-products. **ESMS** is environmentally safe and is not harmful to animals, plants and humans.

**COMPLIANCE:**

Fully complies with EPA Toxic Substance Control Act (TSCA) and the rules, orders and regulations promulgated there under including:

- a) Sections 4, 5, 6 & 7; Title 40 Chapter 1, 707.20 thru 707.75;
- b) 40 CFR Sections 704.3. 710.2(e) and 720.3(c); and
- c) Sections 5 and 13, reference 42FR64583
- d) Does not contain marine pollutants as defined in 49 CFR 171.8.

**STORAGE & HANDLING:**

Store in a cool location away from direct sunlight - No special handling required

**PACKAGING:**

2 Litre Jug

20 Litre (5 gallon) HDPE Pail

205 Litre (45 gallon) Barrel

1000 Litre Tote