



**penergetic**   
the natural biotechnology

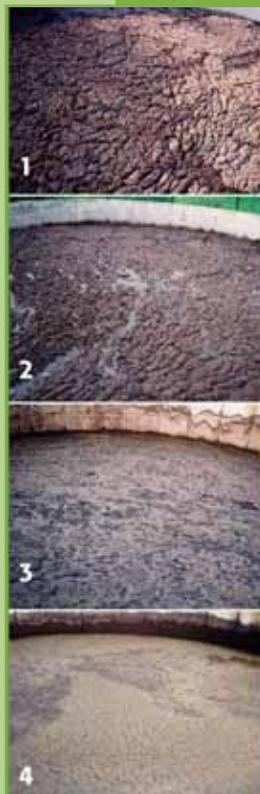
## Optimal Liquid Manure Treatment

**penergetic**  **g**

- Eliminates unpleasant ammonia and sulphur odors
- Controls crust and/or sediment layer formation
- Causes slurry to become homogenous
- Addresses insects and manure-borne pathogens
- Better for soil & crops while protecting groundwater

### Applications:

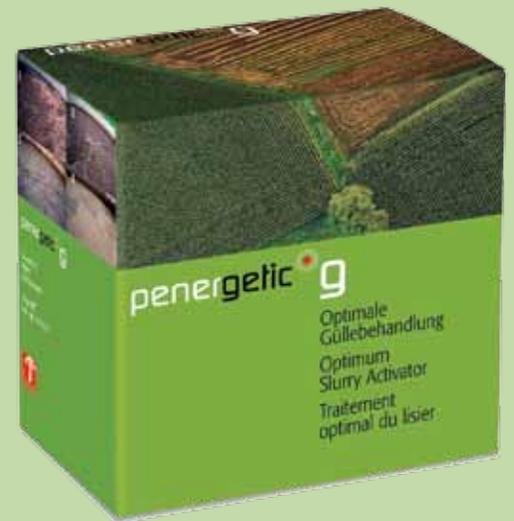
- scaper alleys
- in-barn effluent channels
- slurry tanks and lagoons
- underground storage pits



# penergetic<sup>g</sup>

## Slurry Activator

*“Converting a problematic waste product into a valuable organic fertilizer.”*



### **BENEFITS**

- Optimizes slurry and liquid manure
- Stimulates more complete breakdown of slurry by decomposition (aerobic process), instead of more common and the desirable putrefaction & decay (anaerobic process)
- Overcomes the emission of undesirable gases, including hydrogen sulfide, ammonia & (odorless) methane gas
- Mitigates blocked effluent channels and pits, stops crust formation & bottom sedimentation layers
- Produces homogeneous and free flowing slurry
- Less need for stirring or aeration of stored slurry
- Reduces the occurrence of harmful insect and insect larvae
- Overcomes plant scorching during field application
- Reduces requirements for fertilizer and farm chemicals
- Retains manure nutrients, e.g. converts nitrogen as ammonia to more valuable, non-volatilizing ammonium and supports organic phosphorus conversion to plant-available inorganic phosphorus
- Optimizes manuring effect which activates the soil and contributes to plant nourishment
- Creates valuable organic fertilizer facilitating more balanced delivery of nutrients to plants and soil
- No chemical ingredients, no heavy capital cost and reduced energy consumption
- Environmentally friendly and ecologically balanced (OMRI listed)

**PRODUCT FORMS\***    ✱ Penergetic g for slurry and liquid manure  
                                 ✱ Penergetic g (k) for slurry with extra fibre content

\* Also a separate product for pig slurry (called: penergetic g for pig slurry), is available and addresses the special characteristics associated with slurry generated in swine operations.



## RECOMMENDED DOSAGES

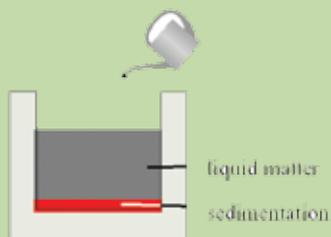
**Initial use:** For every 1.0 MM gallons of liquid manure/slurry, mix 66 - 88 lbs. penergetic g or g(k) with water and pour into underground pit, slurry tank/lagoon and/or effluent channels. For difficult situations (heavy pit/lagoon congestion) especially first time use opt for the higher application rate and/or use pen g(k).

\* For specific volumes consult your supplier for more detail instructions.

**Each subsequent application:** Add 8 oz. per 45 livestock unit (LSU)\*\* (or 5 grams per LSU) weekly or 8.8 lbs. (4.0 kg) of pen-g or g(k) for every 100,000 gallons (400 cubic metres) of additional slurry or liquid manure to alleys, effluent channels or underground pit. **[Note: for the first 12 - 15 weeks recommended to double the weekly application rate to 1.0 lb. of penergetic g or g(k) per 45 LSUs.]**

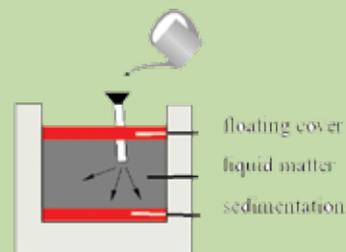
\*\* Contact distributor for details on LSU equivalents, e.g. cow = 1 LSU; cow 1-2 years = 0.7 LSU

## RECOMMENDED METHOD OF APPLICATION



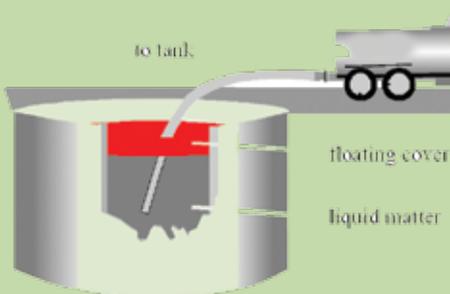
### a. In alleys or effluent channels *without* a floating layer

Mix penergetic g with plenty of water in a watering can and pour evenly over the channel. Better results may be achieved by pouring 2/3 of the recommended dosage at upstream end of alley or the head of the effluent channel.



### b. In reception pits or effluent channels *with* a floating layer

Poke two holes through the floating layer for each 10 sq. ft. (square metre) of crust and pour the mixture of penergetic g and water through these holes into the liquid layer of the slurry.



### c. For in-barn pits (under slatted floor), slurry tank or lagoon

Pour the penergetic g/water mixture over the agitator or stirring mechanism while it is in operation. If no agitation mechanism is available, puncture any crust layer with a suction hose and introduce the penergetic g/water mixture under the crust via the hose. Pump sufficient slurry out of the tank or lagoon to fill the suction tank then pump it back into the slurry tank/lagoon. This procedure should be repeated at several points when large slurry tanks or lagoons are involved.

### d. In underground pits and stall cleanout channels

Mix penergetic g with plenty of water in a watering can and pour it evenly over the empty pit or channel. Repeat this procedure each time the channel or pit is drained.

### When penergetic g begins to work

Once the reaction has been initiated, it is sufficient to apply penergetic g mixed with plenty of water through the gaps, etc. This must be carried out regularly, and after 14 days at the latest.



# TRANSFORMING A PROBLEMATIC WASTE INTO A VALUABLE ORGANIC FERTILIZER

## Slurry as a “problem situation” requiring resolution

The daily problems involving slurry are familiar to any dairy or pig farmer: blocked effluent channels, floating layers and solidified sedimentation layers in the slurry tanks, the need for extensive stirring before applying the slurry, an acrid, pungent smell in the area of barns and pits, gas emissions during stirring and application of the slurry, burning and scorching of the crops after application and many other problems. Often despite the farmer’s best efforts, the slurry fails to produce the desired fertilizing effect. This leads to the application of additional fertilizers and other crop protection measures.

## The underlying problem – putrefaction

Typically, slurry will become a problematic waste product when conversion takes place by means of putrefaction processes. This involves decay under anaerobic conditions, i.e. in the absence of oxygen. Anaerobic conversion of slurry leads to the development of malodorous gases, including hydrogen sulfide and ammonia, and odorless methane gas. Also problematic, the odor carriers in manure – indole and skatole (3-methylindole) – attract harmful insects. These insects lay their eggs in the slurry, and the subsequent larvae are contained in the slurry which is applied to the crops, leading to crop damage and the need to apply pesticides. Furthermore, the valuable substance ammonium nitrogen is lost in the anaerobic slurry, because ammonium is converted into ammonia and is no longer available for plants.

## Oxygen through aeration?

The conventional method of introducing oxygen into the slurry involves mechanical aeration by means of stirrers or compressors. However, this technical method becomes problematic when dealing with large quantities of slurry which cannot be stirred effectively every day. Floating layers then quickly form, further sealing off the slurry from the oxygen supply and thus strengthening the anaerobic environment. The annual energy costs for stirring operations can also be considerable.

## The natural solution – decomposition

But there is another way! The simple and natural solution to turn slurry into a valuable organic fertilizer involves activating those decomposition processes in the slurry which only take place with oxygen. Decomposition involves mould fungi, yeasts and many other microorganisms, include several biological processes which are absolutely vital to maintaining a state of equilibrium in nature. Mould fungi very quickly bind any ammonia which is present in the first stage of the decomposition process to form ammonium nitrogen, which is subsequently available to plants as a slow release source of nitrogen. The harmful and unpleasant biogases are also largely eliminated, providing for a noticeable difference in the pit and during application. A healthy, decomposed slurry thus constitutes an important element of a closed substance cycle management system which benefits the soil, plants, animals and humans alike.

## Activating sludge

The best solution is a simple method which activates the aerobic bacteria while avoiding the use of external energy and other factors detrimental to the environment. PENERGETIC G possesses the specific active properties of oxygen and reactivates the life processes in slurry. The putrefactive bacteria die and the oxygen which is present in the slurry is aerobically activated. An oxygen-producing and breathing biomass quickly arises. The micro algae which develop change the color of the slurry to dark green and the work performed by the bacteria renders the slurry homogeneous. In the course of time, existing floating layers and sedimentation layers dissolve. As a natural side-effect of these processes, the smell is diminished and problems of insects addressed. Using the decomposed slurry produced with PENERGETIC G enables the quantity of commercial fertilizer used to be reduced.

**RESULTS OBTAINED WITH PENERGETIC G** The aerobic process created in the slurry leads to homogenization.



The slurry pit prior to using PENERGETIC G  
[heavy crust layer evident]



Adding PENERGETIC G causes the  
floating layer and sedimentation layers  
to become dissolved.



The process leads to a completely  
homogenous free flowing composition.  
Also odor and insects are diminished.

**For further information contact:**

## PENERGETIC SOLUTIONS

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