
Organic-mineral fertilizer (OMF)
Nutrient recovery process

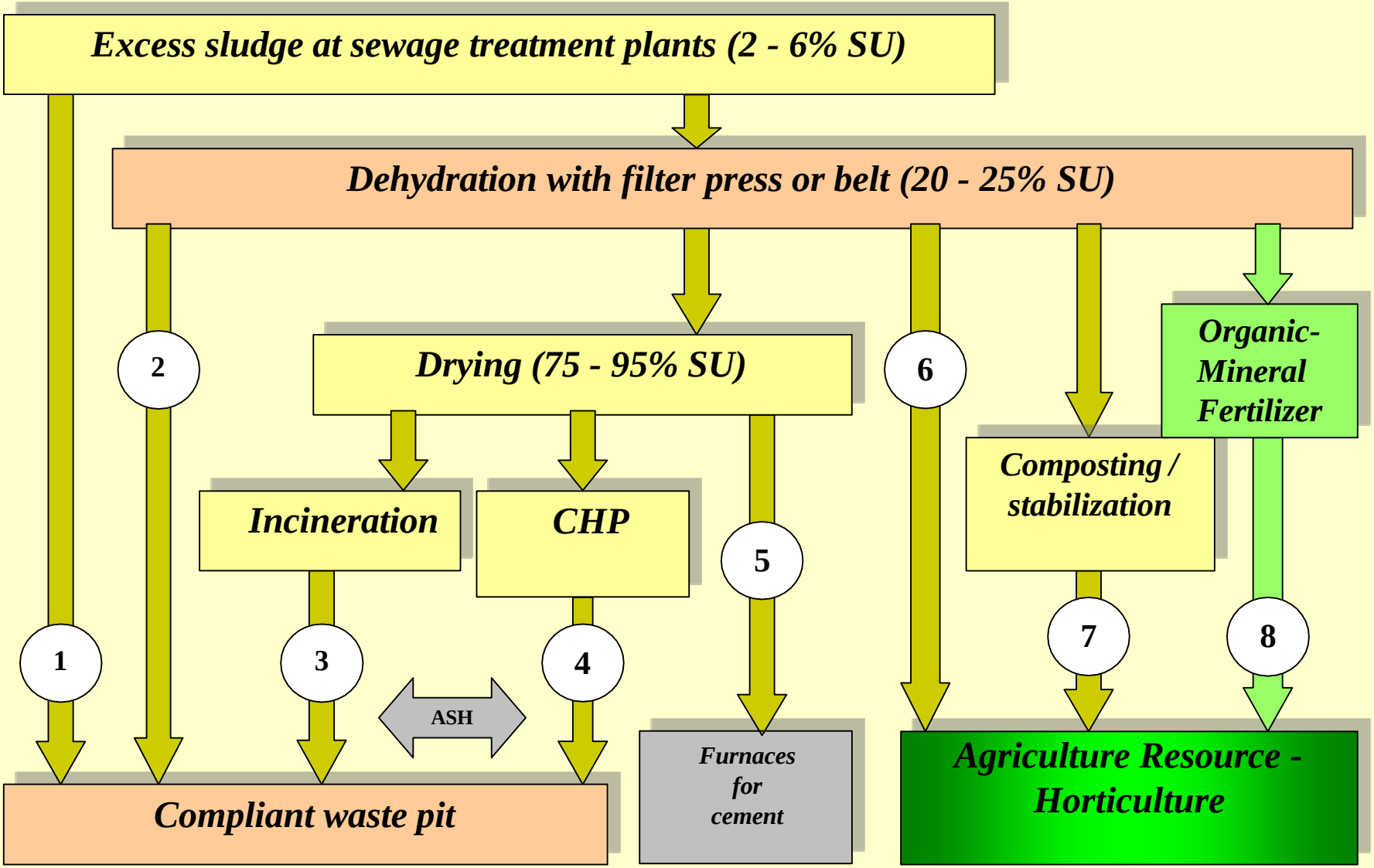
Organic-mineral fertilizer (OMF)

- *OMFs are produced by the reaction of an organic substrate (humus) with mineral chemical fertilizer to improve or "strengthen" the nutrient content, thus adding value to the recycled product.*
- *Exothermic hydrolysis reaction (from added chemical fertilizer), mineralizes and kills all pathogens in organic waste*
- *Chemicals are chosen to balance the required NPK ratios in agricultural or horticultural land*

Raw materials

- *Primary sludge from municipal sewage treatment plants, activated sludge, wet sludge, dehydrated cakes or sludge from digesters.*
- *Farm waste: fodder waste, manure, blood from slaughterhouses.*
- *High nutrient waste from food processing*

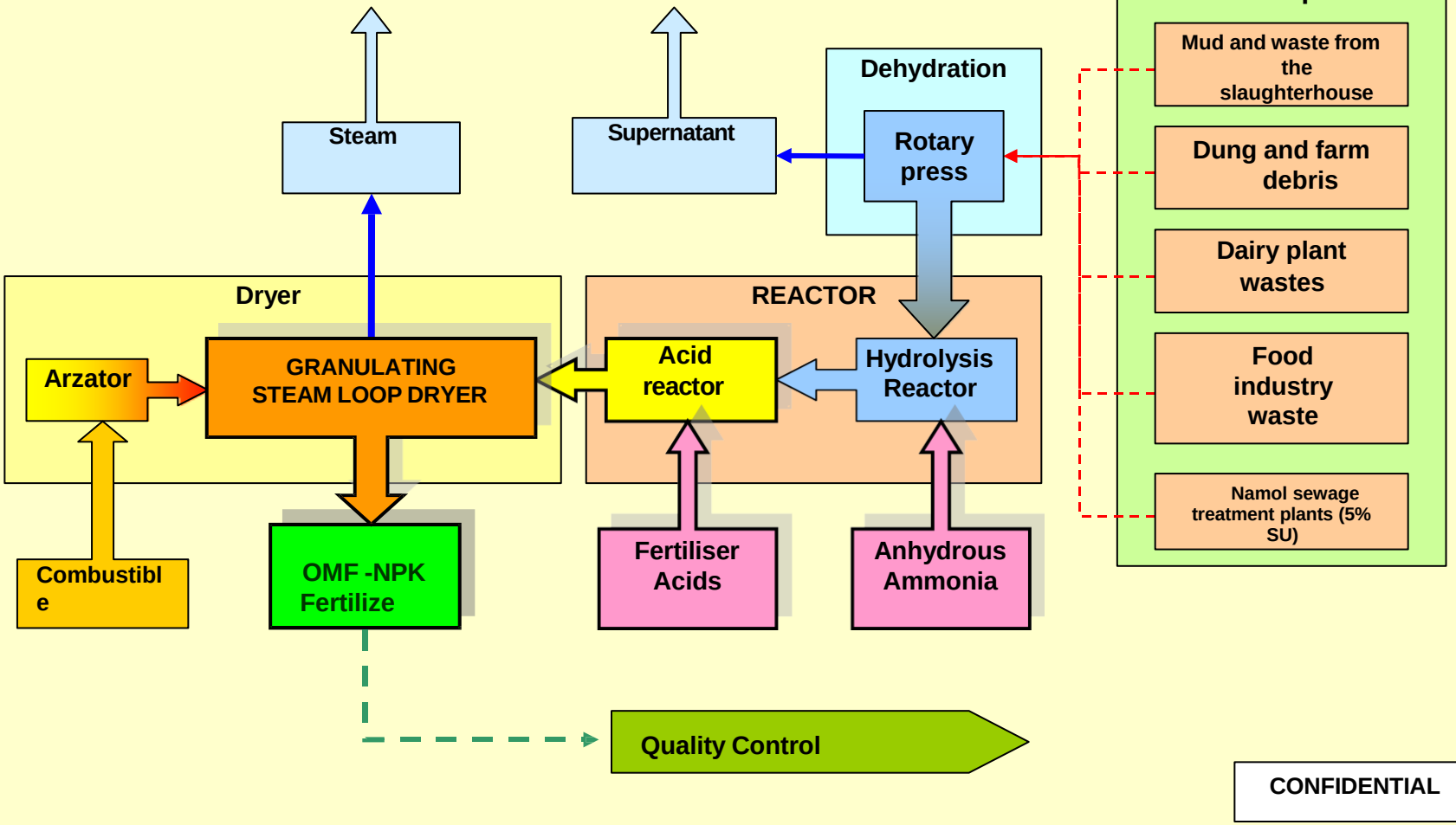
Ordinary solutions for mud



INTERREG III A - Modular Demonstration Plant
Contract 20702

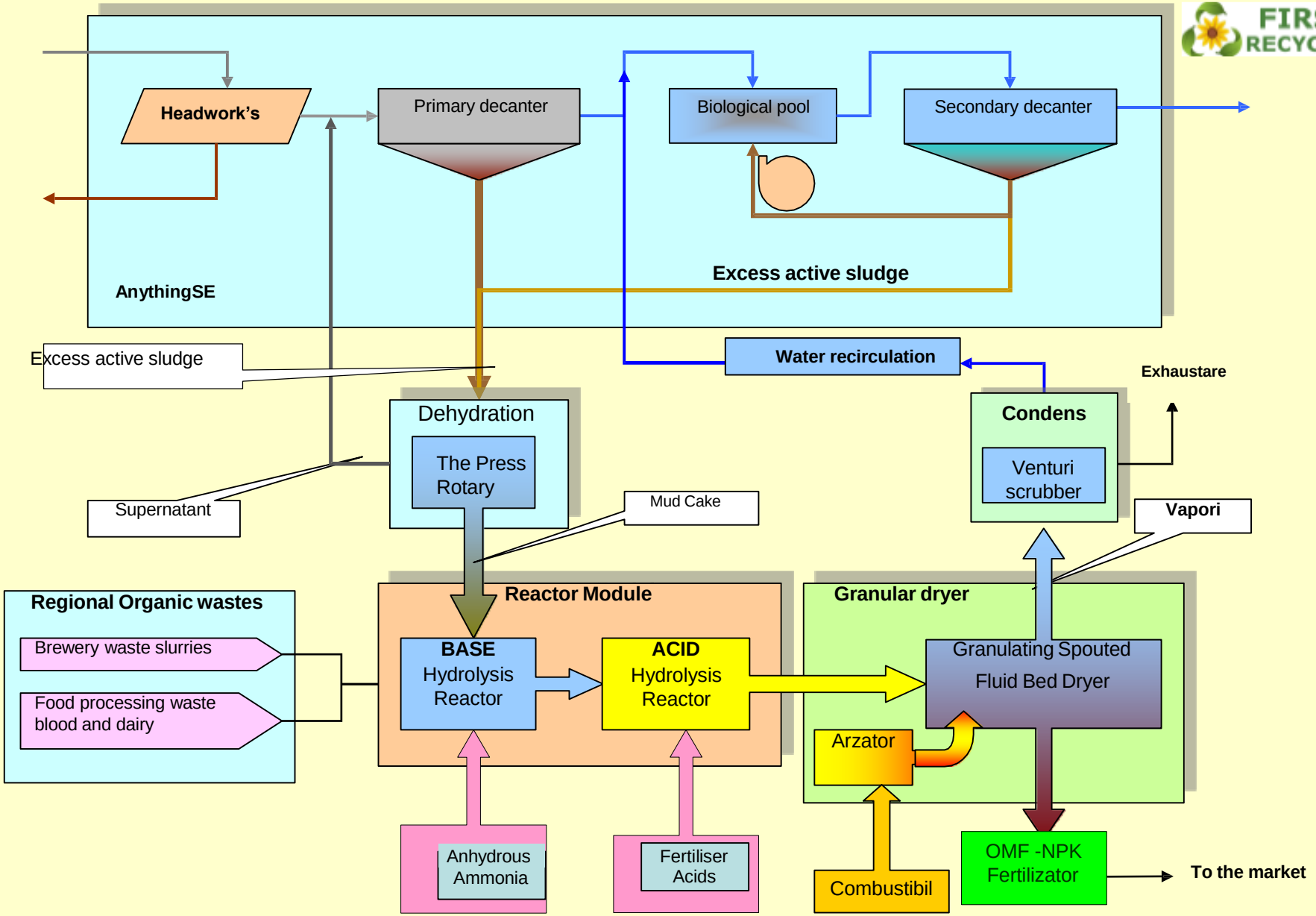
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Green Circle OMF Proces

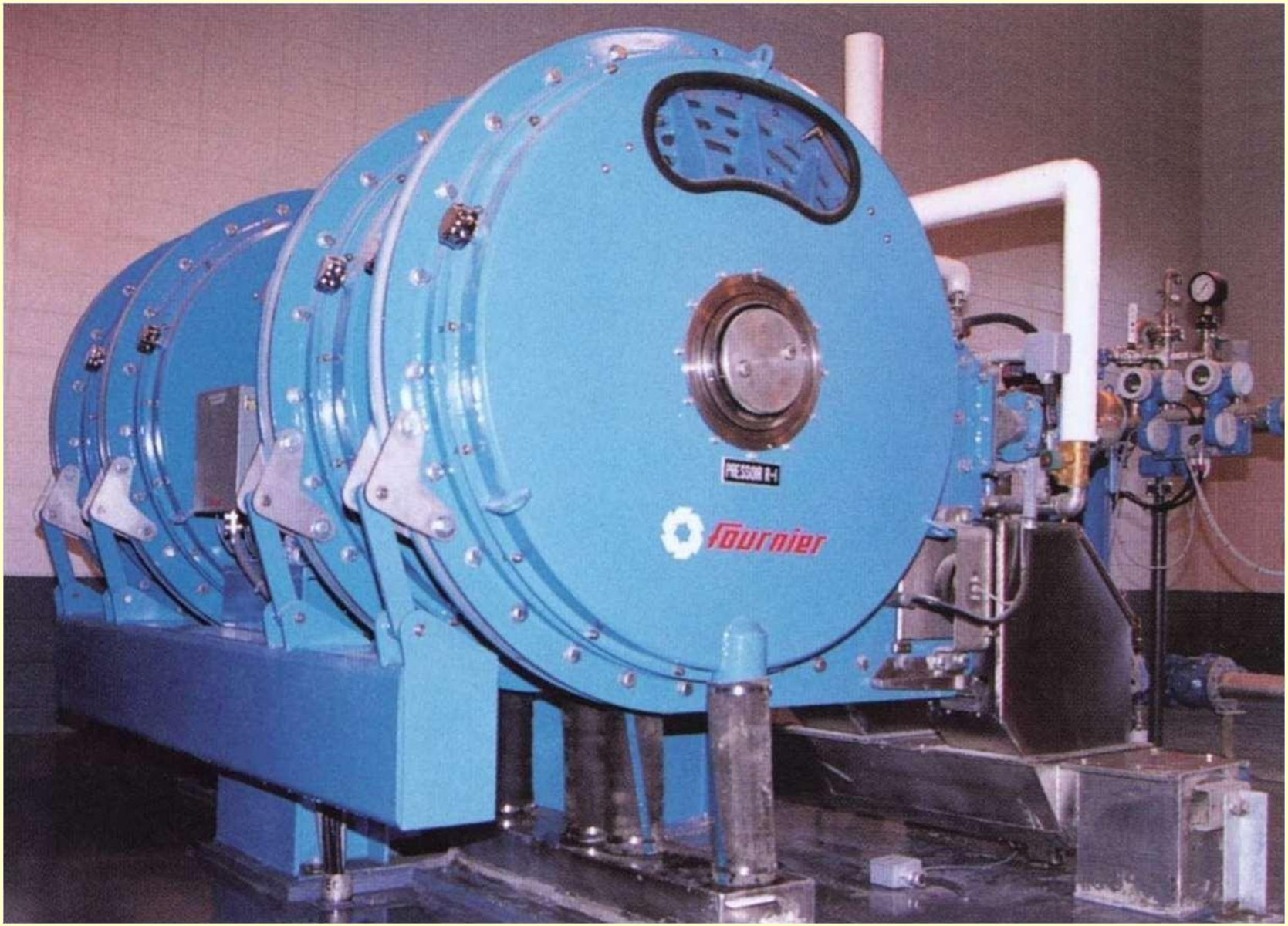


CONFIDENTIAL

OMF from sludge from sewage treatment plants

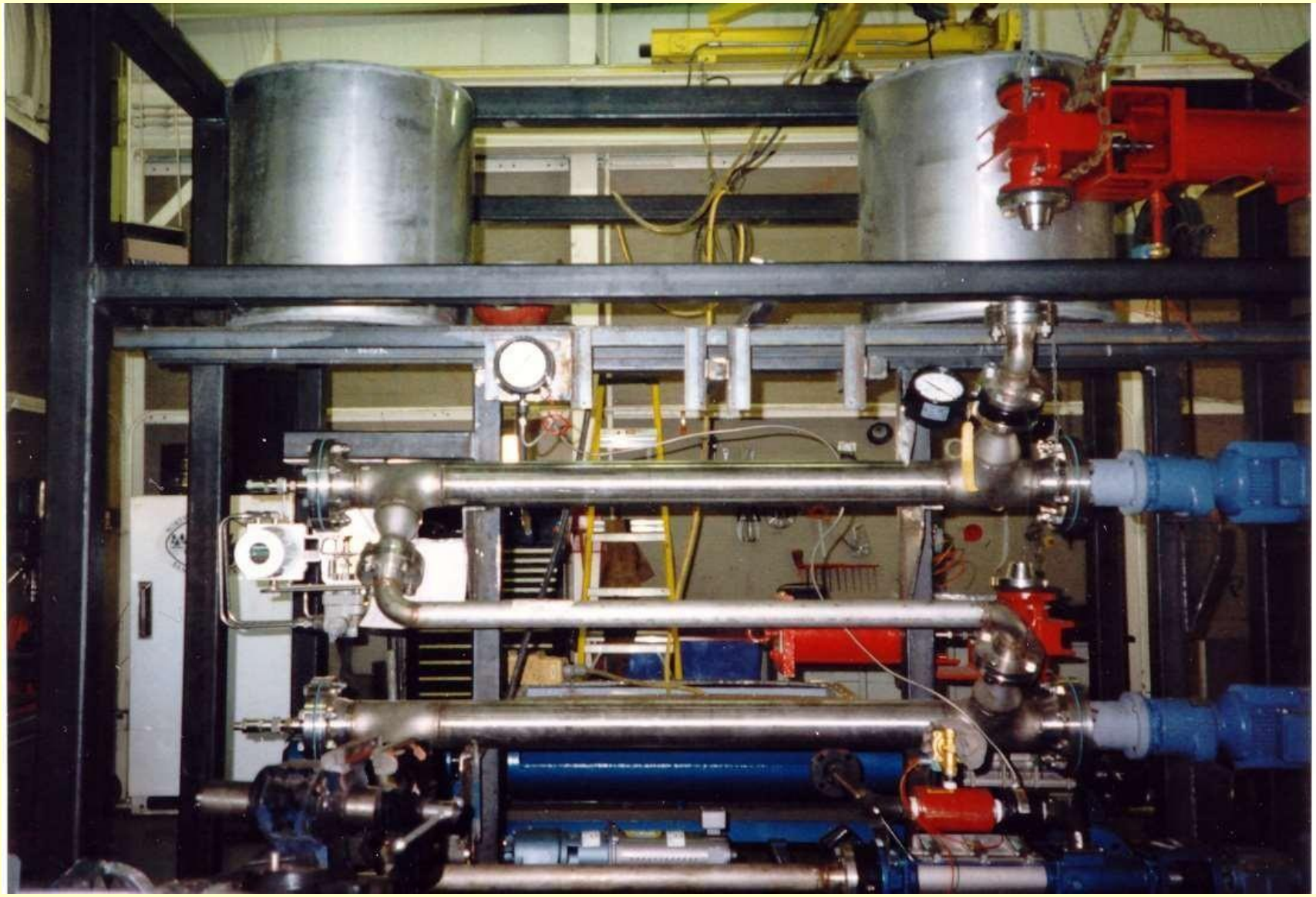


MUD DRYER



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Typical Fortification Reactor



Granulating Sludge Dryer



Final Product



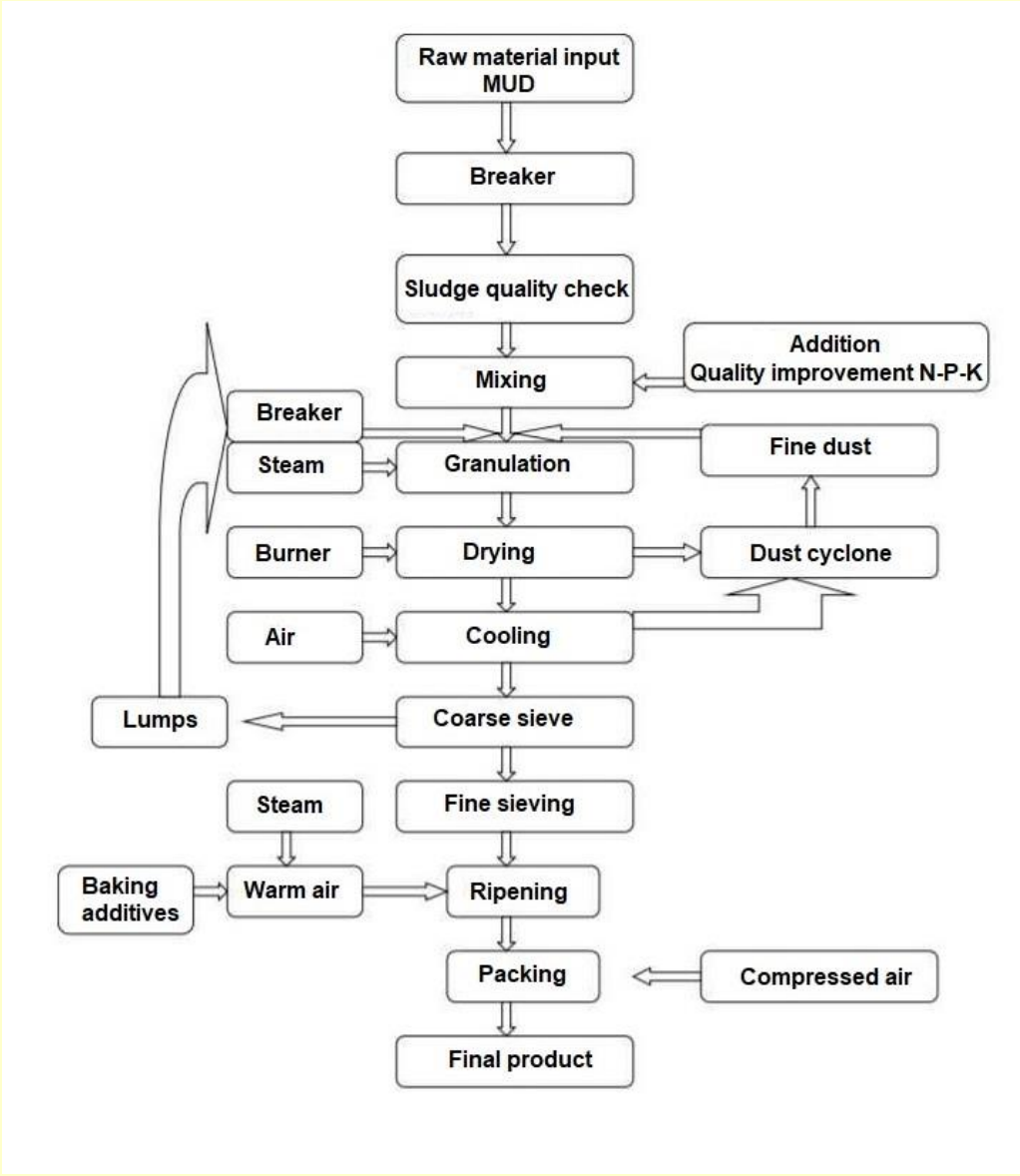
Typical products OMF



OMF Features & Benefits

- *N:P:K adjusted to the particular requirements of the soil*
- *Non-polluting. Slow melting, slow release*
- *The organic content retains soil moisture*
- *The granular product has free flow without dust*
- *Does it burn*
- *Recycled organic, without secondary flows*
- *Recycled organic, without secondary flows*
- *Viable commercial option for sludg*

OMF FLOWCHART



Station feeding bunker



Breaker



RAW Material quality control system



Dynamic ingredients



Static ingredients



Industrial Personal Computer

CONVEYOR BELT



SLUDGE DRYER



SNAIL



Granulator



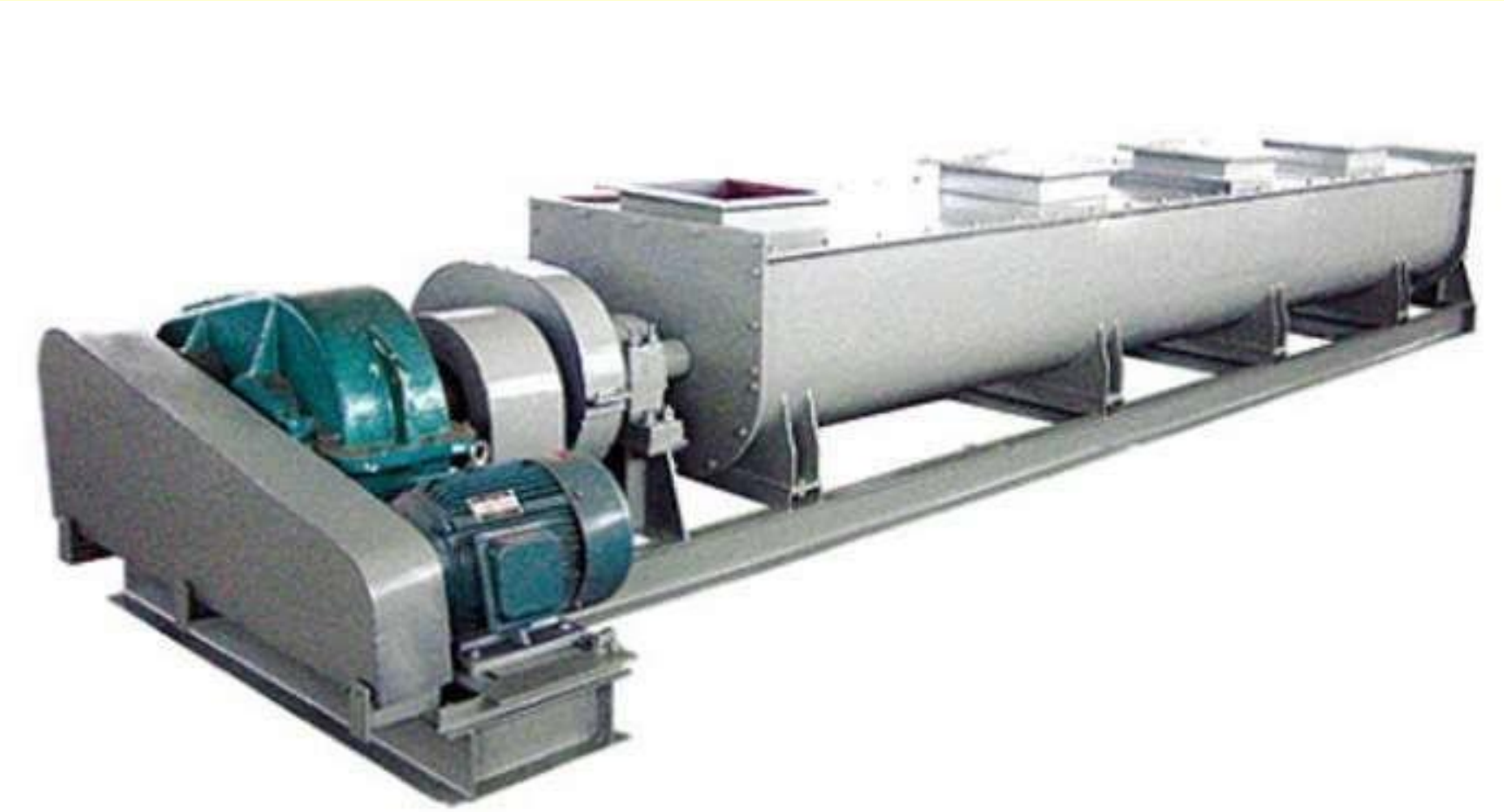
Rotating Screen



FURNACE



Double axle mixer



FAN



Cyclone



Packing



Electrical Cabinet



Organic, plant-based NPK fertiliser

Nutrient composition

5.0% total organically bonded nitrogen
3.0% P_2O_5
1.0% K_2O
4.0% CaO
0.67% S, 0.25% Mg, 0.28% Fe,
0.02% Zn, 0.002% B
84% organic substance
C/N ratio: 10:1
pH value: 6.4

Source materials

Sludge from sewage system, Food production residues, distillers grains, cocoa shells

Benefits and effects

- Takes effect even at low soil temperatures
- Fermented residue materials for high nutrient availability
- Inherent weed control effect
- Highly resistant to nutrient leaching
- Improves soil structure
- Ensures long-term soil fertility
- Promotes humus formation to increase soil health
- Stores water efficiently
- Pleasant smell
- Harmless to humans and animals
- Easy to spread, dissolves quickly

Organo-mineral NPK fertiliser

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Nutrient composition

8.0% total organically bonded nitrogen
6.0% P_2O_5
7.0% K_2O
8.0% CaO
2.5% S
0.25% Mg, 0.05% Fe, 0.009% Zn, 0.00018% B
68% organic substance
C/N ratio: 4:1
pH value: 6.5

Source materials

Sludge from sewage system, Animal by-products (Cat 3 materials according to EC Regulation 1069/2009; meat bone meal, blood meal), Kalisop.

Benef ts and effects

- Crops benefit from well-balanced nutrient supply for increased growth, root strength and harvest quality
- Provides protection from damage caused by game animals
- Perfect for high nitrogen demand periods even when for short growth-cycle crops
- Efficient use of nutrients and quick nutrient availability
- Long-term phosphorus supply on mildly acidic to acidic soils
- Highly resistant to nutrient leaching
- Improves soil structure
- Ensures long-term soil fertility

Organic NP fertiliser

Nutrient composition

7.5% total organically bonded nitrogen
11% P_2O_5
0.2% K_2O
14% CaO
0.24% Mg, 0.11% S, 0.038% Fe,
0.012% Zn, 0.00013% B
70% organic substance
C/N ratio: 5:1
pH value: 6.2

Source materials

Sludge from sewage system, Animal by-products (Cat 3 materials according to EC Regulation 1069/2009; meat and bone meal), calcium carbonate

Benefits and effects

- Increased root growth
- Increased yield potential
- Perfect for high nitrogen demand periods even when for short growth-cycle crops
- Long-term phosphorus supply on mildly acidic to acidic soils
- Highly resistant to nutrient leaching
- Improves soil structure
- Ensures long-term soil fertility
- Promotes humus formation to increase soil health
- Stores water efficiently
- Activates microorganisms
- Easy-to-spread pellets

Organic nitrogen fertiliser

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Nutrient composition

13.0% total organically bonded nitrogen
0.5% P_2O_5
2.0% CaO
1.5% S, 0.09% Mg, 0.028% Fe, 0.013% Zn
95% organic substance
C/N ratio: 3.5:1
pH value: 5.6

Source materials

Sludge from sewage system, Animal by-products (Cat 3 materials according to EC Regulation 1069/2009; feather meal, bristle meal)

Benefits and effects

- High nitrogen content for increased growth
- Covers nitrogen demands even when vegetation periods are short
- Excellent supplement to basic fertilising using compost or manure
- Faster nitrogen release than horn-based fertilisers
- Highly resistant to nutrient leaching
- Improves soil structure
- Ensures long-term soil fertility
- Promotes humus formation to increase soil health
- Stores water efficiently
- Easy to spread, dissolves quickly

Organic, plant-based NPK fertiliser offering extra power through **effective microorganisms**

Nutrient composition

5.0% total organically bonded nitrogen
3.0% P_2O_5
1.0% K_2O
4.0% CaO
0.67% S, 0.25% Mg, 0.28% Fe, 0.02% Zn, 0.002% B
84% organic substance
C/N ratio: 10:1
pH value: 6.4

Source materials

Sludge from sewage system, Food production residues, distillers grains, cocoa shells, effective microorganisms (lactic-acid and photosynthesis bacteria, yeasts, sugar-cane molasses), humic acid

Benefits and effects

- Takes effect even at low soil temperatures
- Effective microorganisms (eM) accelerate nutrient uptake
- eM ensure faster nutrient availability and soil aeration, promoting both germ and root formation
- Inherent weed control effect
- Highly resistant to nutrient leaching
- High-grade humic acids improve soil quality
- Ensures long-term soil fertility
- Promotes humus formation to increase soil health
- Stores water efficiently
- Pleasant smell
- Harmless to humans and animals
- Easy to spread, dissolves quickly

FIRST RECYCLER

Thank You!!!

