



**Introduction of various different
aerobic treatment technologies and
the relevance for small, middle and
large operations**

Overview for small size composting plant

Criteria of determination	Equipment			
Building structure	open	Fleece cover	covered	closed
Aeration type	Natural chimney effect	with aeration support	Active → positive & negative	
Turner type	Windrow turner	Wheel loader/excavator or	Bucket wheel, screw	
Pile type	Windrow		Table pile	
Windrow movement	Static		Dynamic	
Turning/Mixing	Seldom turning	Regularly turning	Continuous movement	
System	Batch		Flow	
Process operation	manually		automated	



in some cases
never

Small size composting plants

- ▶ simple technology
- ▶ paved area/open ground
- ▶ windrow composting
- ▶ small windrows (1-1.5 m height)
- ▶ turned by windrow turner
- ▶ Process time: 6-8 weeks

strongly related to agricultur



Overview for medium size composting plant

Criteria of determination	Equipment			
Building structure	open	Fleece cover	covered	closed
Aeration type	Natural chimney effect	with aeration support	Active → positive & negative	
Turner type	Windrow turner	Wheel loader/excavator or	Bucket wheel, screw	
Pile type	Windrow		Table pile	
Windrow movement	Static		Dynamic	
Turning/Mixing	Seldom turning	Regularly turning	Continuous movement	
System	Batch		Flow	
Process operation	manually		automated	



in some cases
never

Medium size composting plants

- ▶ paved area
- ▶ windrow or box composting
- ▶ height 1,8 – 2,5m
- ▶ „natural chimney effect or aeration support
- ▶ regulary turned
- ▶ Process time: ~ 8 weeks
- ▶ different compost/soil products



Special type – Containercomposting

Container composting

- ▶ Collection
- ▶ Sanitization
- ▶ Transportation
- ▶ Composting



Special type – membrane composting

- ▶ covered with semipermeable membrane
- ▶ aeration required
- ▶ odour control?
- ▶ compost quality?



Overview for large size composting plant

Criteria of determination	Equipment			
Building structure	open	Fleece cover	covered	closed
Aeration type	Natural chimney effect	with aeration support	Active → positive & negative	
Turner type	Windrow turner	Wheel loader/excavator or	Bucket wheel, screw	
Pile type	Windrow		Table pile	
Windrow movement	Static		Dynamic	
Turning/Mixing	Seldom turning	Regularly turning	Continuous movement	
System	Batch		Flow	
Process operation	manually		automated	



in some cases
never

Large size composting plants

- ▶ industrial process
- ▶ closed system – air treatment
- ▶ aeration required
- ▶ suitable for all material
- ▶ windrow or box composting
- ▶ Process time: 4 – 8 weeks
- ▶ IPPC
- ▶ compost quality control?



„Surrounding parameter“

input	MBT, sewage sludge, bio waste, agricultural waste	
capacity	Low (< 100 t/a)	High (> 100.000 t/a)
emission control	no need (i.e. no neighbourhood)	sensible area
Location	decentralized	centralized
climate condition	rainfall & sun protection	
infrastructure	electricity, water supply, waste water treatment	
space requirement	enough space	limited space
machinery equipment	mobile	stationary
compost quality	high quality compost	no need (i.e. CLO)
Invest. & operation cost	low	high



Thank you for your attention!

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