



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

Overview for <u>small</u> size composting plant

| Criteria of determination | Equipment | | | | | |
|----------------------------------|------------------------|-----|--------------------------------|------------|------------------------------|-----------------------|
| Building structure | open | | leece cover | coveréd | | closed |
| Aeration type | Natural chimney eff | ect | with a | | Active → positive & negative | |
| Turner type | Windrow turner | | Wheel- loader/excavat or | | Bucket wheel, | |
| Pile type | Windrow | | | Table pile | | |
| Windrow movement | Static | | | Dynamic | | |
| Turning/Mixing | Seldem turning | | Regularly turning | | | entinuous novement |
| 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 | | leece cover | covered | | closed |
| Aeration type | Natural chimney eff | ect | with a | eration port | Active → positive & negative | |
| Turner type | Windrow turner | | Wheel loader/excavat or | | Bucket wheel, | |
| Pile type | Windrow | | | Table pile | | |
| Windrow movement | Static | | | Dynamic | | |
| Turning/Mixing | Seldom turning | | Regularly turning | | | entinuous novement |
| System | Batch | | | Flow | | |
| Process operation | manually | | | automated | | |



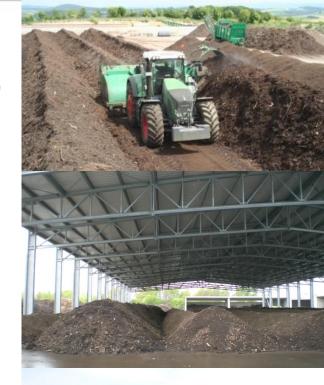
in some cases never



Medium size composting plants

- paved area
- windrow or box composting
- ▶ height 1,8 2,5m
- "natural chimeny 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 <u>large</u> size composting plant

| Criteria of determination | Equipment | | | | | |
|----------------------------------|------------------------|-------------------|-------------------------|-----------------|------------------------------|-----------------------|
| Building structure | open | open Fleece cover | | covered | | closed |
| Aeration type | Naturál chimney eff | ect | with a | eration port | Active → positive & negative | |
| Turner type | Windrow turner | | Wheel loader/excavat or | | Bucket wheel, screw | |
| Pile type | Windrow | | | Table pile | | |
| Windrow movement | Static | | | Dynamic | | |
| Turning/Mixing | Seldom turning | | Regularly turning | | | ontinuous novement |
| 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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