



# Odour Impacts of Composting

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# ODOUR IS A KILLER!



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# ODOUR IS INEVITABLE



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## ODOUR SCIENCE

- Composting always results in the production of volatile organic compounds, For example:
  - Fatty Acids - Ammonia - Mercaptans - Skatoles
  - Sulphides - Methane - Amines - Essential oils
- High Temperatures in composting result in the “boiling off” of many odorous compounds
- Anaerobic conditions typically result in the generation of more odorous gases, e.g.
  - Sulphur + oxygen = sulphate
  - Sulphur – oxygen = sulphide
  - Carbon + oxygen = carbon dioxide
  - Carbon – oxygen = methane



## ODOUR ART

- Odour perception can be a highly personal attribute
- Odour can be visual as well as nasal
- Some odours are more offensive than others, skatole vs ammonia
- Odour impacts on neighbours can result in highly entrenched opinions
- PR and engineering must work hand in hand in dealing with odour complaints
- Odour is the number one reason for facility closure in the US



## SOURCES OF ODOUR

- Delivery of Organics
- Type of Organics
- Pre-processing
- Active Composting
- Curing/Stockpiling
- Screening
- Effluents

## BIO-WASTE DELIVERY



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## BIOSOLIDS DELIVERY



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## GREEN WASTE DELIVERY



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## PRE-PROCESSING



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## ACTIVE COMPOSTING (WINDROWS)



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## ACTIVE COMPOSTING (AERATED SYSTEMS)



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# SCREENING



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## COMPOST STOCK-PILE / STORAGE



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# LEACHATE



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# LEACHATE TREATMENT



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## ODOUR ABATEMENT

- Location
- General Housekeeping
- Enclosure
- Aeration
- Scrubbing
- Biofiltration
- Other technologies



## LOCATION

- Urban locations make sense from a logistics perspective
- Rural locations make sense from a odour perspective.
- Very few sites will have no sensitive receptors
- The closer the neighbours the more sophisticated the odour abatement systems required.



## HOUSEKEEPING

- Process organics as soon as possible after arrival
- Try and avoid putrefied organics
- Avoid visual odour, keep the site tidy
- Do not let leachate accumulate
- Keep your piles aerobic
- Use enough bulking material
  - Avoid screening too early
  - Don't pile compost too high

# ENCLOSURE



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# AERATION



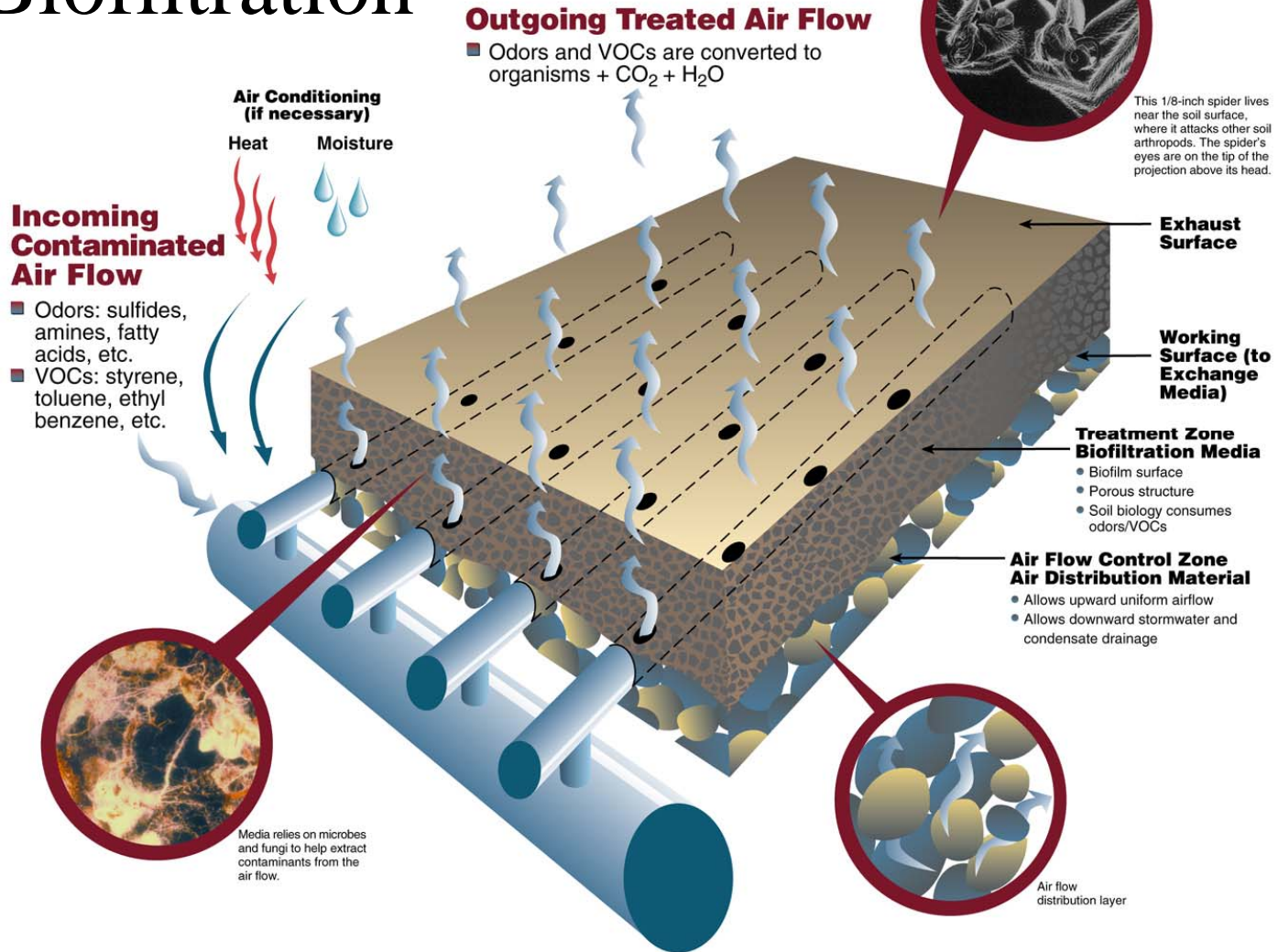
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# SCRUBBING



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# Biofiltration



# Biofiltration



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# Other Technologies

- Thermal Destruction
- Ionization/catalytic oxidation
- Ozone
- Odour masking

# Facility Upgrade

