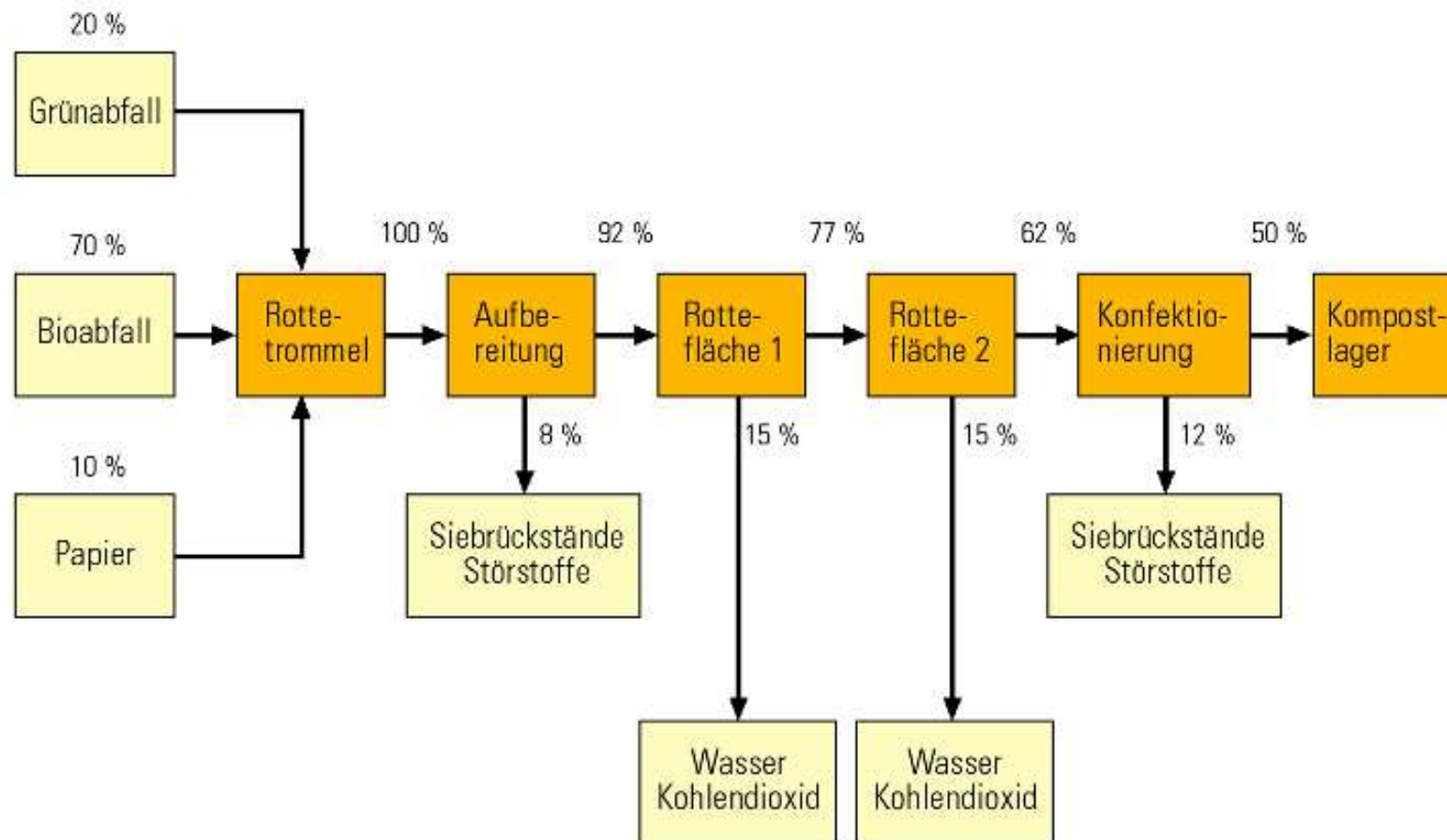




Odour and Leaches

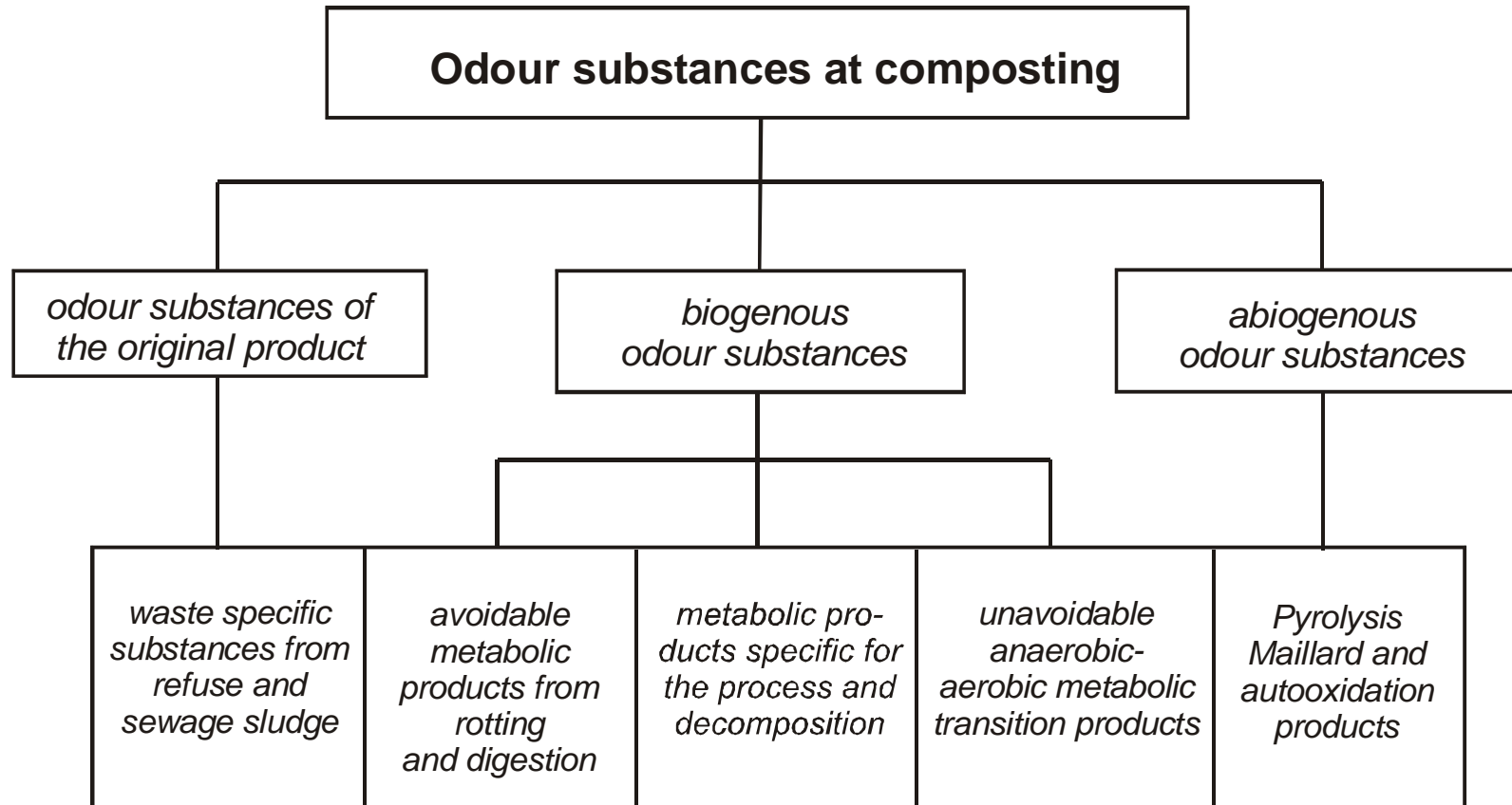


Massenbalance biological treatmentplant





Odour substances [JAGER et al., 1995]



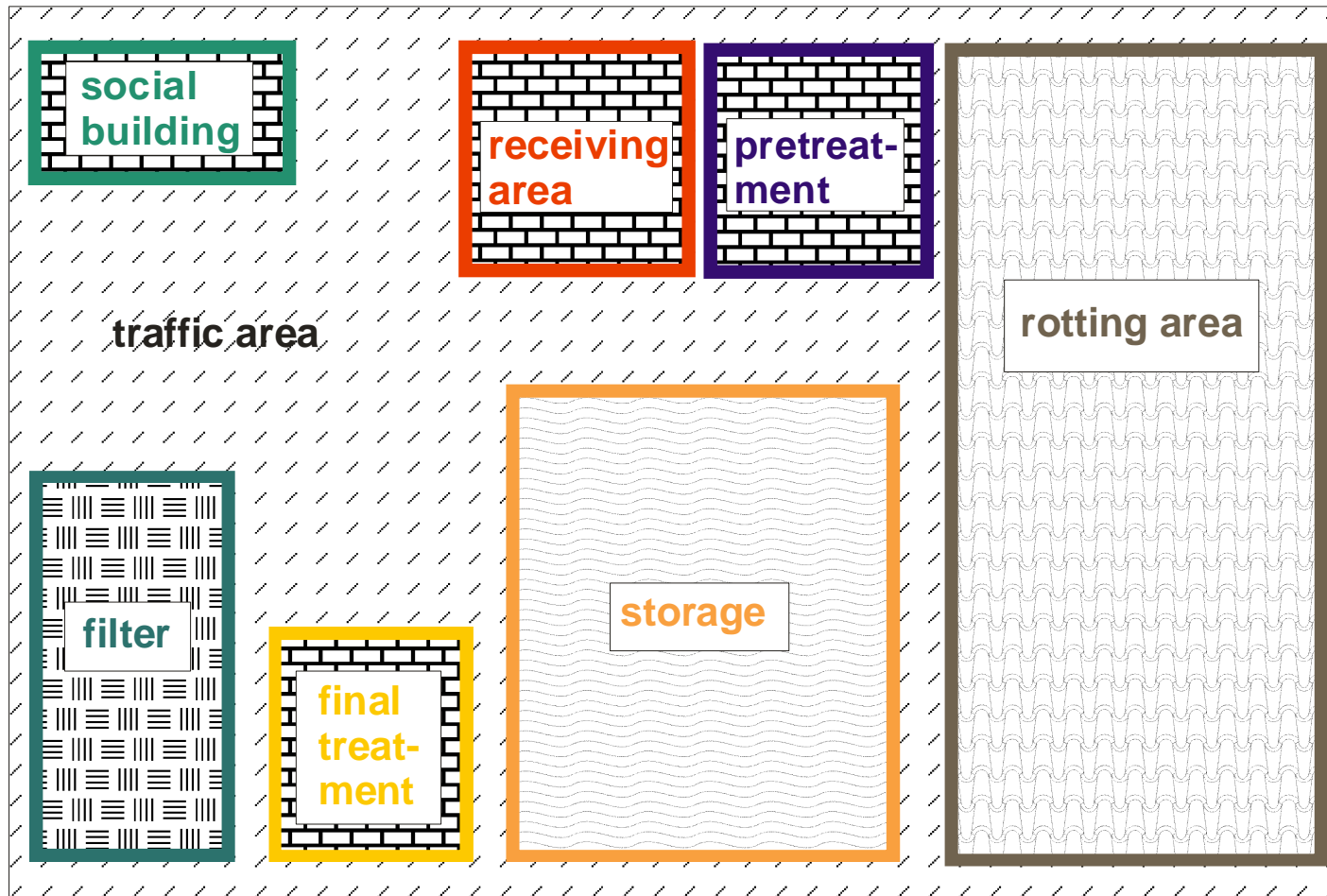


Phases and odour active substances of the decomposition process [accord. to PÖHLE et al., 1993]

Decomposition phase	Characteristic odour active substances	Determinating odour impression	Concentration [OU/m ³]	Period [d]	pH-value
I. Acid starting phase	aldehyde, alcohol, carboxylic acid ester, ketone, sulphide, terpene	alcoholic - fruity	6.000 - 25.000	3 - 14	4 - 6
II. Thermophile phase	ketone, sulphide-organic compounds, terpene ammonia	sweet - fungoid, annoying-musty	1.000 - 9.000	4 - 14	limit to basic range
III. Cooling phase	sulphide, terpene, ammonia	musty - fungoid - pungent	150 - 3.000	to the end of the test period	-

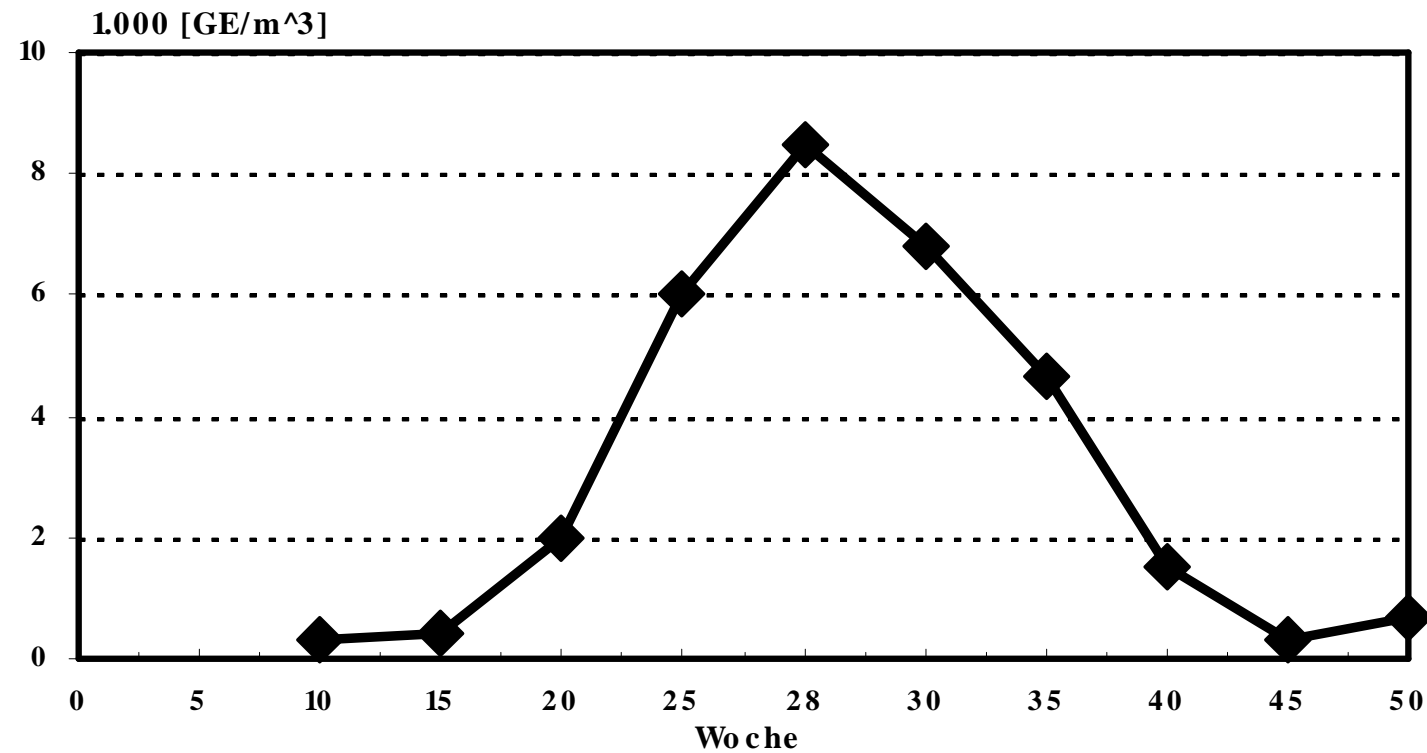


Components of a composting plant



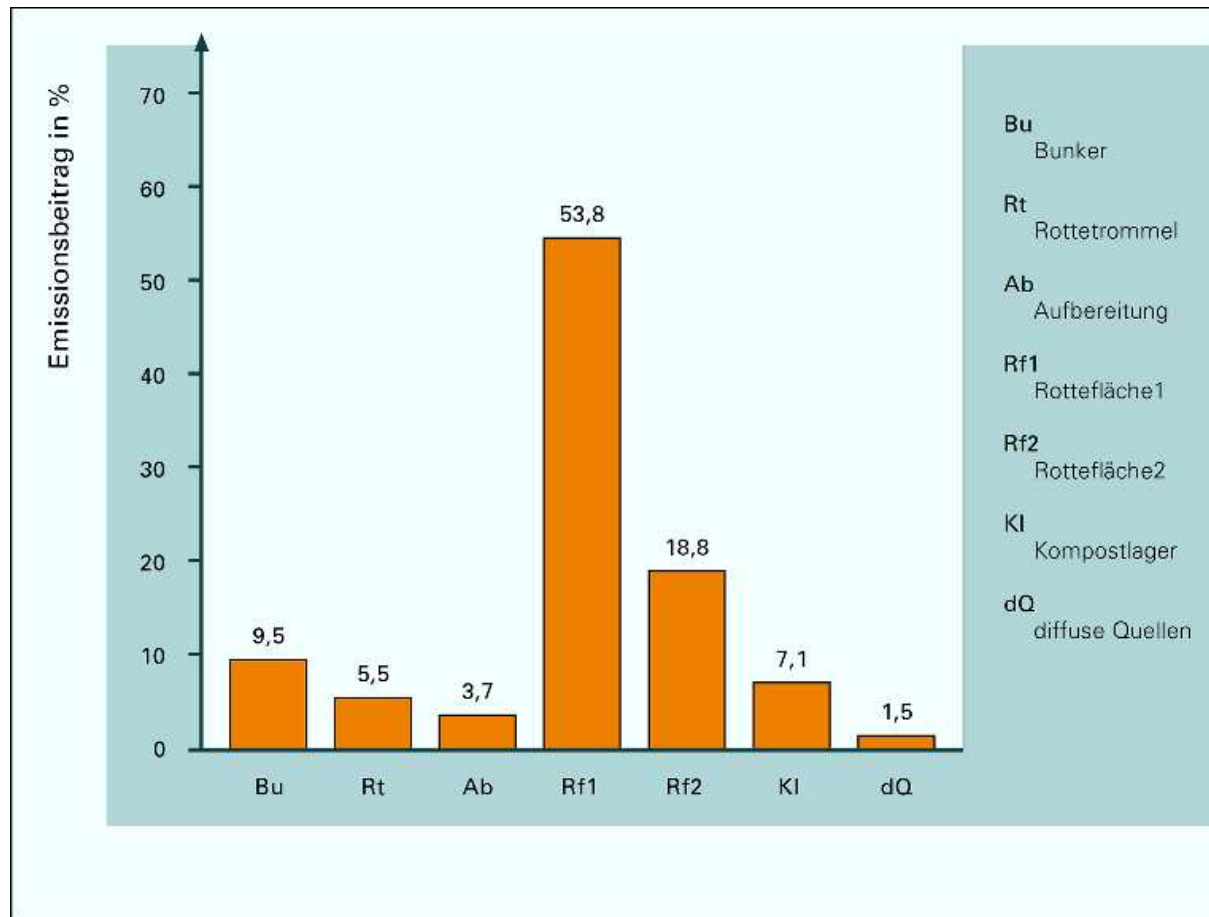


Odour from Biowaste freshly delivered

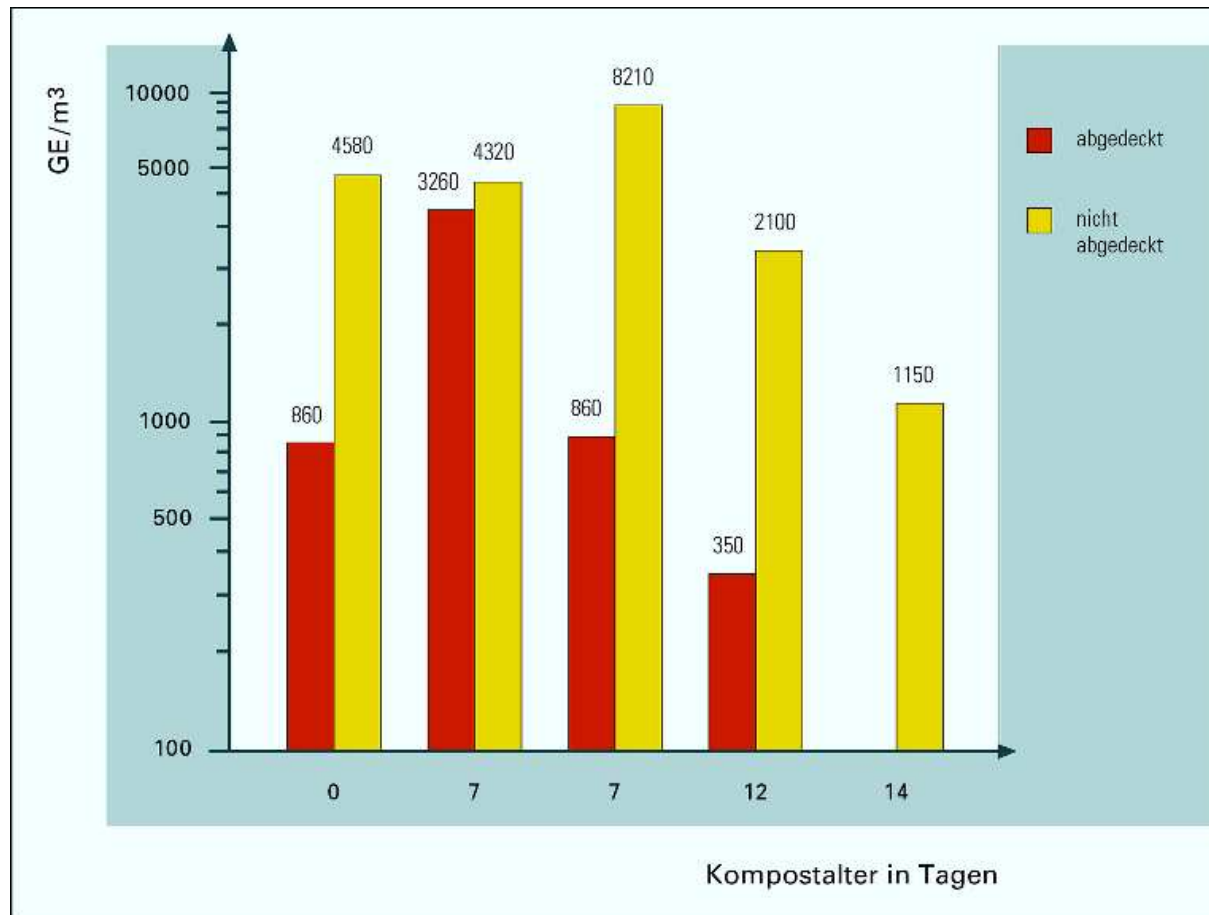




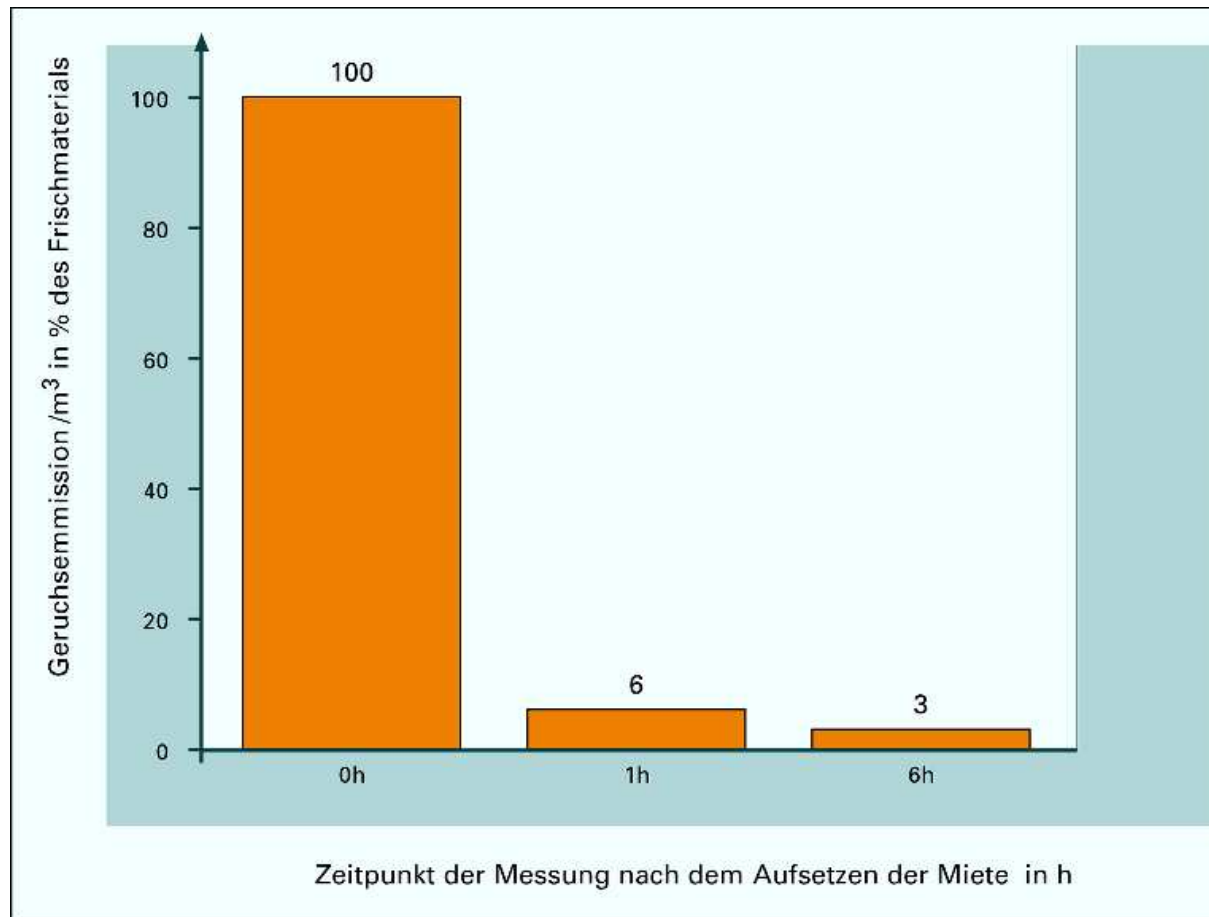
Part of Emissions from different parts of the plant (12.500 Mg/a)

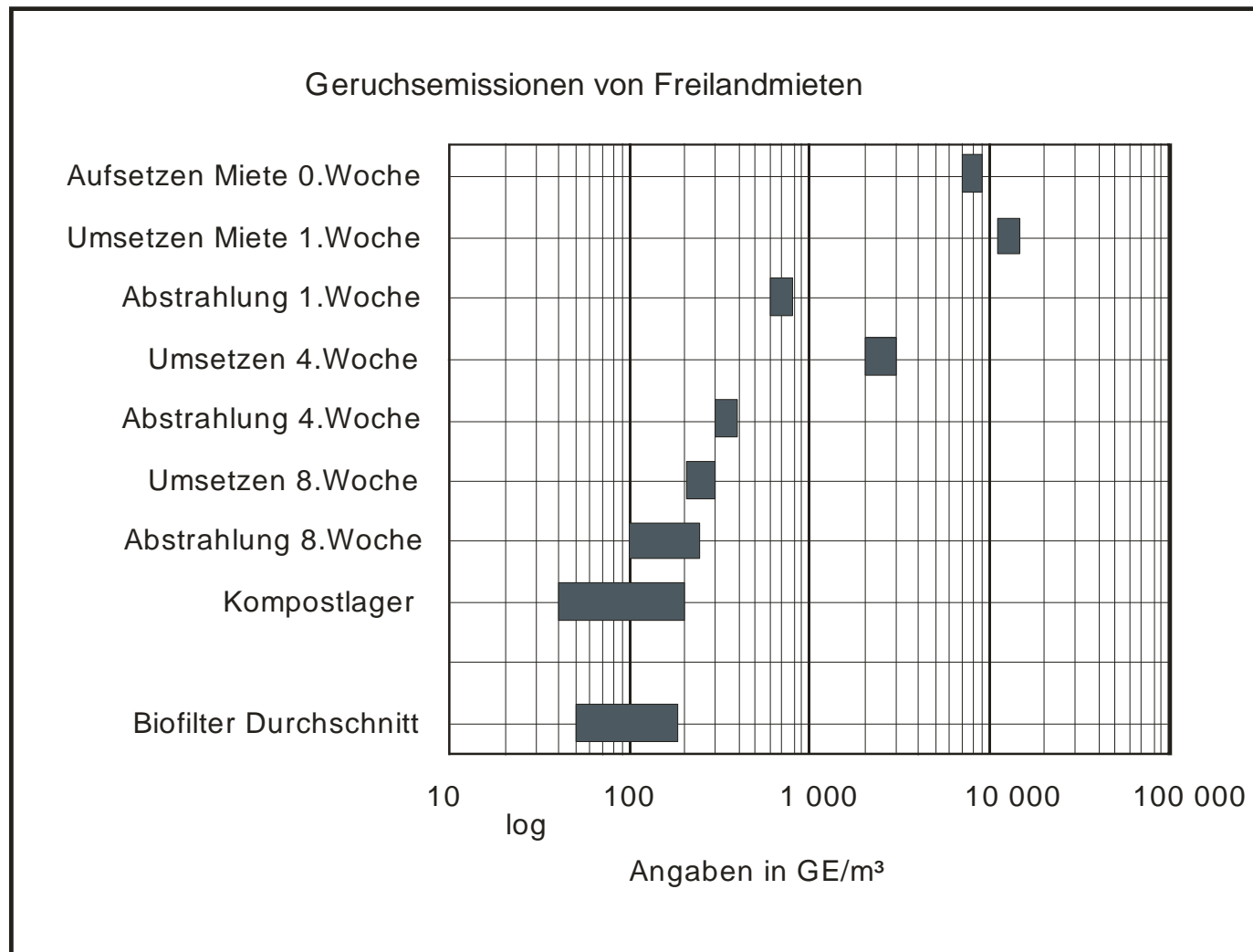


Emmission depending from the compost age



Odour emission after piling

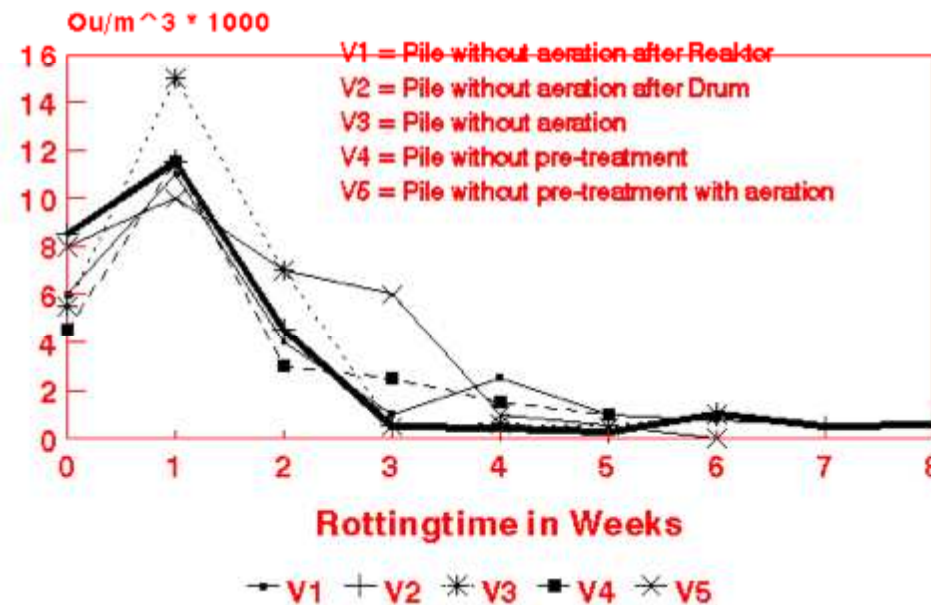




Geruchsemissionen bei Mietenverfahren



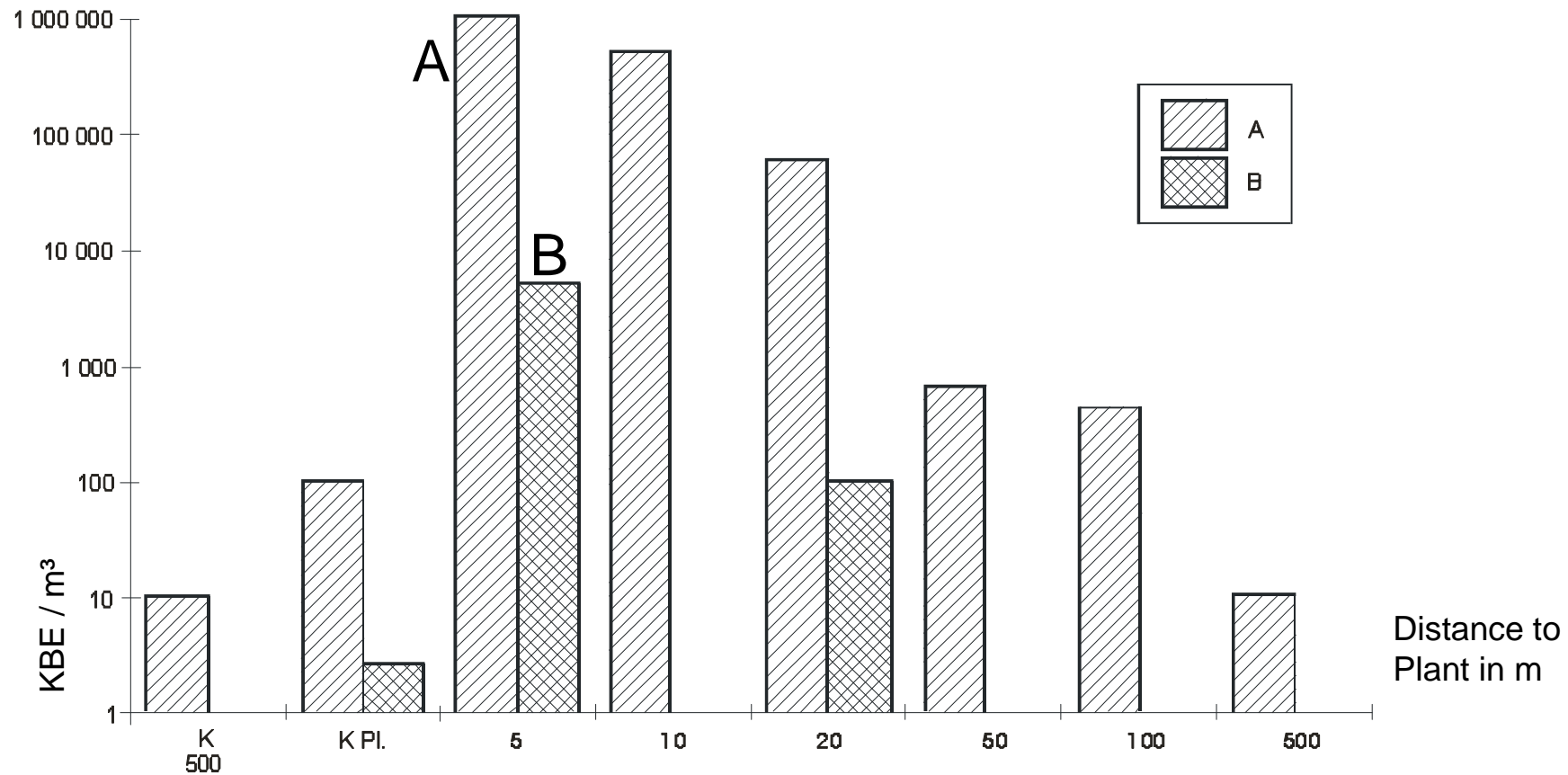
Odouranalysis from piles Ordouremission after turning





Spreading of *Aspergillus Fumigatus* in lee during turning

K 500 = Control without turning in 500 m
K Pl. = Control without turning at the plant





Waste water

- **Water content of the substrate**
- **Decomposition of the org. substance**
- **Grad of dewatering**
- **200 to 500 l waste water/Mg Biowaste**



Charakteristik of the waste water

Parameter	unit	data
Filtratable substances	mg/l	5.000 bis 20.000
Salt content	µS/cm	1.500 bis 25.000
AOX	mg/l	0,5 bis 15 ⁾
Sulfate	mg/l	50 bis 1.000
CSB	mg/l	2.000 bis 35.000
NH ₄ -N	mg/l	200 bis 2.500
Poison to fishes	G _F	bis 20

(Loll, 2000)

Demand on water quality



	unit	sample 2-hours
COD	mg/l	200
BOD	mg/l	20
(N_{ges})	mg/l	70
(P_{ges})	mg/l	3
(CH_{ges})	mg/l	10
Poison to fishes	G_F	2



Immission



The following parameters influence the transportation of gases emitting from an odour source:

- **wind velocity,**
- **wind direction,**
- **temperature,**
- **air pressure,**
- **cloudiness,**
- **insolation,**
- **local conditions like location on slopes, planting, type of buildings and water bodies.**



Immission values, quoted as relative limit values for different settlement types [GIR, 1993]

Residential / mixed area	Commercial / industrial area
0,10 (10 %)	0,15 (15 %)

(in parenthesis: data in percentage of the annual hours)



Concentration and Load

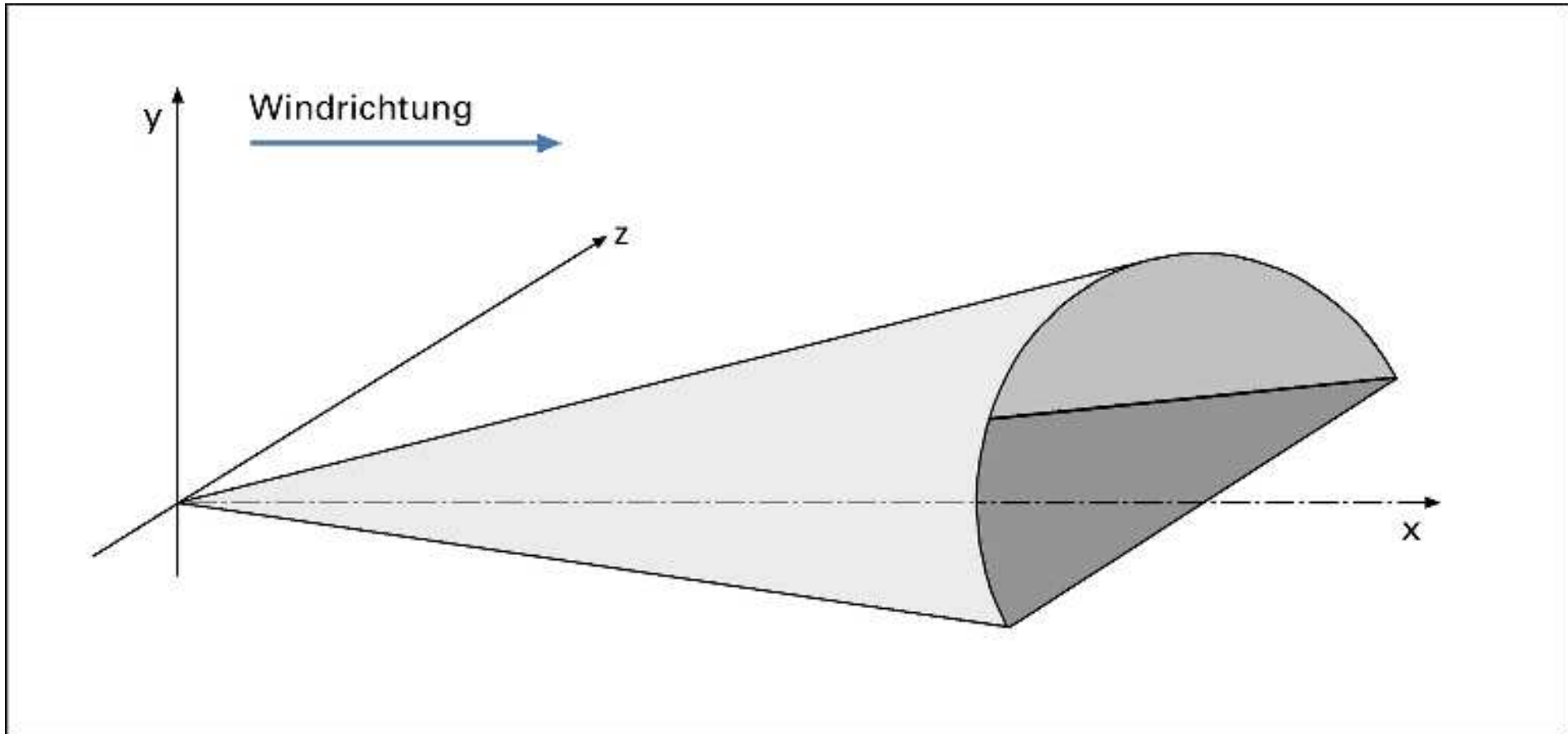
Concentration

$$C \text{ [OU / m}^3 \text{]}$$

Load

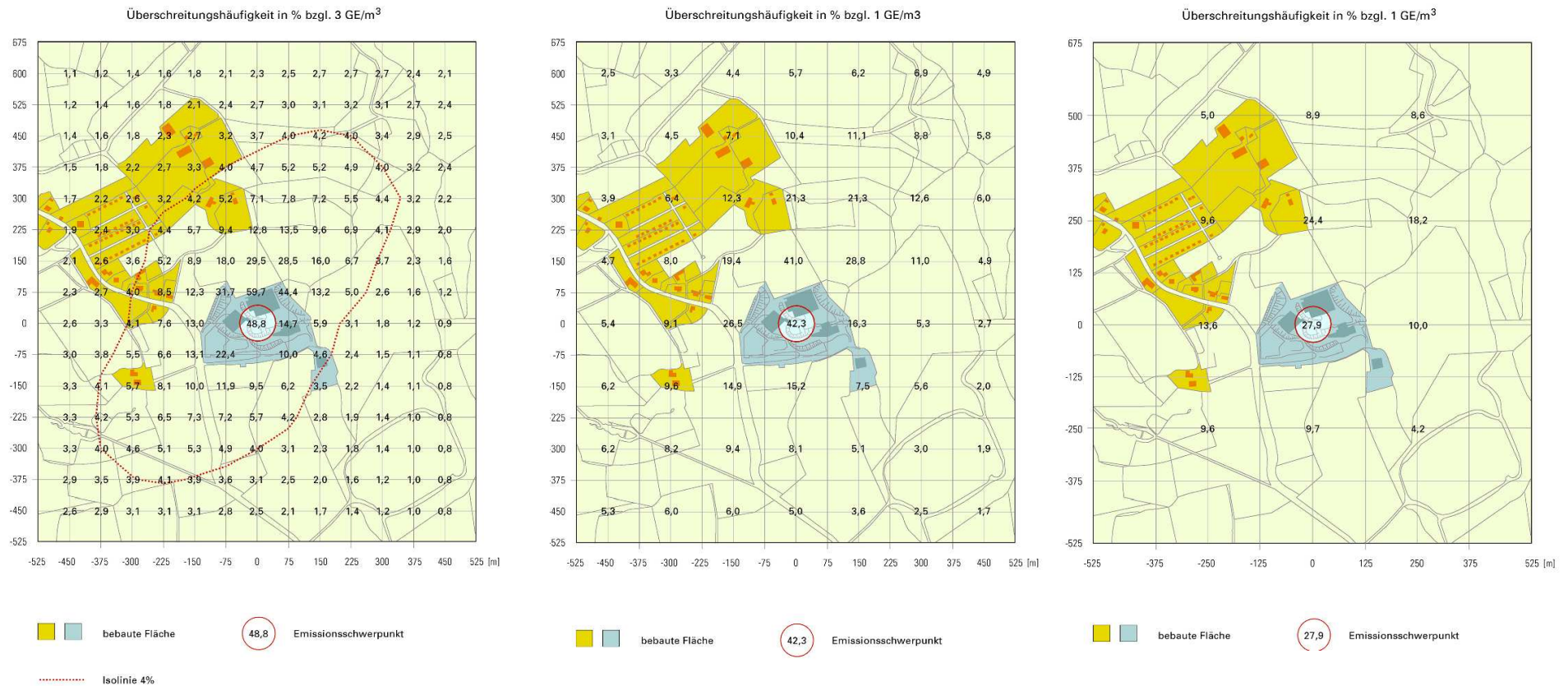
$$q = c \times V \text{ [OU/m}^3 \text{ x m}^3\text{/s] [OU/s]}$$

Spreading neare the surface





Immissionsprognose (12.500 Mg/a),





Measurement

