

## Composting

### Why?

The sewage sludge treatment solutions are listed below. In consideration of present and coming regulations and the ensuing restrictions for „an easy way out“ such as direct spreading (at home and abroad), dumping or incineration, only composting appears to be an economical and ecological, stable, sustainable and guaranteed sludge treatment.

### Sludge composting

- ▶ Stabilization and sanitation of organic matter
- ▶ Odourless
- ▶ High humus level
- ▶ Binding of nutrients
- ▶ Improvement of the soil's water-retention capacity
- ▶ Increase of microbial life in the soil with positive effect on the yield of the fields
- ▶ Pleasing to the eyes
- ▶ Better image and acceptance by the end users

### Direct spreading in agriculture

- ▶ Sludge storage problems on the fields
- ▶ Spreading is forbidden during winter months

- ▶ Slight improvement of the soil structure
- ▶ Odours, pathogenic risks
- ▶ Liming costs
- ▶ Bad image

### Incineration

- ▶ High costs, wasting of nutrients
- ▶ Adaptation of present facilities required, solid and gaseous emissions must be treated
- ▶ Only for unrecyclable sludge
- ▶ Logistics problem: continuous sludge flow needed or great storage capacity next to the incinerator
- ▶ Unecological solution

### Dumping

- ▶ High costs, nutrients and volume waste
- ▶ Forbidden for sludge as from 2002

### Sludge export

- ▶ Administrative and ethical problems
- ▶ One-off and non competent solution
- ▶ The future use of sludge is unknown, as well as the quality of the treatment and of the associated guarantees

## European support

### European innovation programme Project No. IN 10424 I



With the support of the EUROPEAN COMMISSION

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The European Commission supports technological innovation by a partial financing of projects.

#### EUROPEAN COMMISSION Directorate General XIII

Telecommunications, information market and exploitation of research  
Dissemination and exploitation of RTD results, technology transfer and innovation.  
Strategic aspects of innovation and exploitation of research and technological development and intellectual property.

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## Information

### & helpful addresses



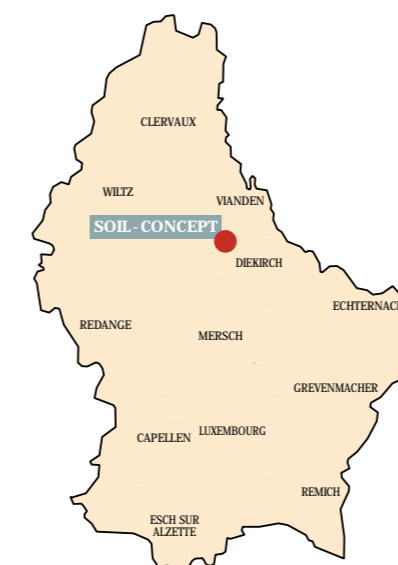
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Sludge Composting Utility Concept

### Pilot composting plant SOIL-CONCEPT (Diekirch)



### Interregional Saar-Lor-Be-Lux project concerning sewage sludge valorisation through composting

with the support of the  
EUROPEAN COMMISSION



## Objectives & Partners

### SOIL-CONCEPT that's:

- ▶ Converting sewage sludge into high-quality substrate
- ▶ A quality standard for sludge compost in Saar-Lor-Be-Lux
- ▶ New products from compost
- ▶ New outlets for these products
- ▶ Selling of substrates in proximity areas
- ▶ Compost quality management through frequent analyses
- ▶ Participation in the elaboration of the European Regulation on sludge compost



### EU-project partners in Saar-Lor-Be-Lux:

- ▶ Sludge producers:
  - SIDEN (L)
  - EVS (D)
  - AIVE (B)
- ▶ Scientific partners:
  - HTW/AGWA (D)
  - Idelux (B)
- ▶ Composting operator:
  - SOIL-CONCEPT S.A. (L)



### Target groups

1. Sewage sludge producers
2. Local communities and social services
3. Farmers and winegrowers
4. Horticulturists
5. Landscape gardeners
6. Industrial companies



# How to compost the sludge on the SOIL-CONCEPT facilities

1. Raw materials admission (weighing, quality control, sampling)

- 1. Max. 30 % D.M. sewage sludge in accordance with the Luxembourg Regulation of 14.04.90
- 2. Sandy residues in accordance with the same regulation
- 3. Barks
- 4. Shredded yardwaste



2. Homogeneous raw material mixing in the composting silos



3. Forced aeration during 4 weeks; regulation of the aeration through temperature and oxygen measurements

4. Compost curing during 8-12 weeks

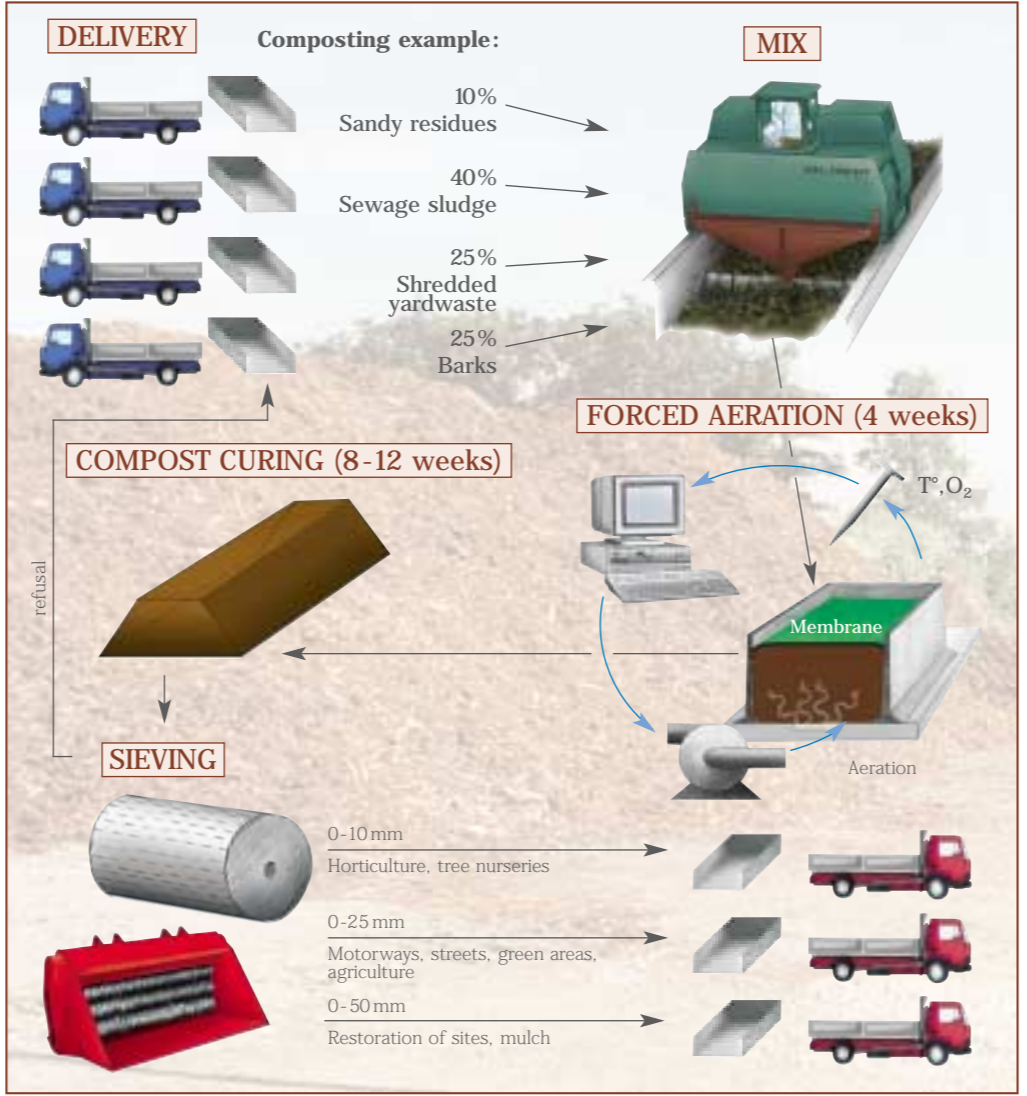
5. Sieving at mesh 0-10, 0-25 and 0-50 mm

6. Storage until final use

7. Special mix produced according to the users' needs



# The facilities of SOIL-CONCEPT



We do not inherit this world from our parents; *we borrow it from our children.*  
«Saint-Exupéry»

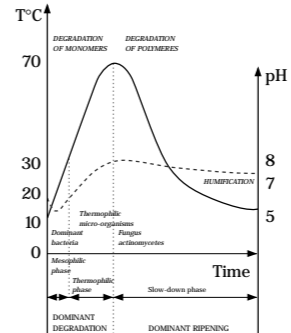
# Composting technology SOIL-CONCEPT

The innovative SOIL CONCEPT process is a controlled aerobic composting under a semi-permeable membrane.

It is adaptable on any composting site working with windrows or silos. It doesn't need either closed buildings (except for the raw material storage), or a biofilter.

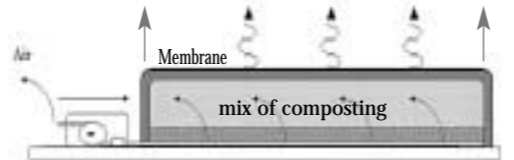
It uses forced aeration techniques regulated by temperature and oxygen, semi-permeable membranes and mixing devices specially conceived for this process.

- Advantages of the membrane:**
- ▶ Anti-odour barrier
  - ▶ Oxygen distributor for good sanitation
  - ▶ Anti-corrosion barrier (no ammonia emission)



- Advantages of forced ventilation:**
- ▶ Better compost sanitation
  - ▶ Homogeneous and standard soil improver
  - ▶ Better fermentation and no odour risk

- Advantages of the compost:**
- ▶ Stable and hygienic product
  - ▶ Contains a high percentage of humus
  - ▶ No odours, good visual aspect
  - ▶ No storage problems
  - ▶ Binding of nutrients
  - ▶ Improvement of the soil's water-retention capacity
  - ▶ Improvement of the soil's micro-biological life



# Compost quality and uses SOIL-CONCEPT

## Quality standards

The SOIL CONCEPT compost quality is controlled on the basis of the German standard LAGA M10.

controlled regarding the table parameters (+ N, P, K, Ca, Mg, Salmonella, entero-bacteria). The PCB, PAH and AOX are analysed at least twice a year for each sludge producer.

The raw materials are analysed every month and the compost is regularly

Parametre	SOIL Compost Standards		Sludge Standars (86/278/EEC)	
	Cat.1	Cat.2	Guide level	Imperative level
Lead	150	250	750	1200
Cadmium	1,5	2,5	20	40
Chromium	100	200	1000	1750
Copper	100	200	1000	1750
Nickel	50	100	300	400
Mercury	1	2	16	25
Zinc	400	750	2500	4000
D.M. (%)	> 55	> 55		
O.M. (%)	> 35 % D.M.	id		

Heavy metals in mg/kg D.M.

## Compost utilization of SOIL-CONCEPT

Sector	Mesh (mm)	Age (weeks)	Suggested quantities		Fréquence maintenance
			Plantation	Maintenance	
Agriculture	0-25	15		15-20 t/ha	3 ans
Wine growing (mulch)	0-50	5	20-50 t/ha		
Wine growing	0-25	15		15-20 t/ha	5-10 ans
Arboriculture	0-25	15	20-50 t/ha	15-20 t/ha	3-5 ans
Horticulture Nursery	0-10 et 0-25	15	20-50 t/ha	15-30 t/ha	2-3 ans
Landscape gardening	0-25	15	15 cm	5 cm	1-2 ans
Road building	0-25	15	20 cm		
Recultivation	0-25	5	40 cm		

Dosages mentioned in the table are only for information. The real dosage takes into account the compost and soil quality.