

# CEN Activities and current developments on-bio waste and sewage sludges.

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**Chair of CENTC308**  
**CO-Chair of ISO ITF Water**

**Symposium Bio Waste and Sludge -**  
**Water Research Institute**

5 October 2012 – Barcelona

**afnor**  
NORMALISATION

# Sludge: Current situation



- **Status: waste or product according to national regulations**
- **Main Final disposal routes**
  - ◆ Agronomic recycling ( reuse on farmland, soil improvers...)
  - ◆ Landfilling
  - ◆ Thermal oxidation (Incineration, Co-Incineration...)
- **Standardization is mainly a support to regulations**
  - ◆ Analytical methods
  - ◆ Good practice guidelines
- **CENTC308 “Sludge characterization”**
- **CENTC223 “ Soils improvers and growing media”**

# CEN/TC 308 Characterization of sludges

## History and Scope



- Creation date CEN TC 308 : 1993-01-01
- Scope / Business Plan (extract) :

“Standardization of the methods for characterising, categorizing, preparing, treating and managing sludges and products from urban wastewater collection systems, night soil, dredging (water stream flushing), biogas production (digestates), storm water handling, water supply treatment plants, wastewater treatment plants for urban and similar industrial waters (as defined in EC directive 91/271/EEC11) but excluding hazardous sludges from industry. The Scope of the TC considers all sludges that may have similar environmental and/or health impacts.”

# CEN/TC 308 Characterization of sludges

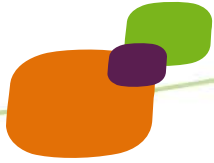
## Chair & Secretariat



- **Chair:** Christophe Bonnin, FP2E  
(French Professional Federation of the Water Industry)
- **Secretariat:** AFNOR, Arnaud GAUDRIER
- **Plenary Meetings:** once every 9 months (Stockholm 2012 & Cyprus 2013)

# CEN/TC 308 Characterization of sludges

## Structure : 3 Working Groups



- **WG1 Characterization Methods**

Convenor: Prof.R.Leschber

Secretariat: DIN, Ms C.Hierath

Meetings: twice a year or more according to work progress

- **WG2 Guidelines of Good Practice in the Production, Utilization and for Disposal of Sludges**

Convenor: Christian Vignoles

Secretariat: AFNOR, Claire Chagué

Meetings: as needed (2 to 4/year)

- **WG3 Measures to Preserve, to Improve and to Extend Sludge Utilization and Disposal Routes**

Convenor: Tim Evans

Professional support: BSI

Meetings: according to work progress

# CEN/TC 308 Characterization of sludges

## WG1 A complete set of physical-chemical analysis tools

- **TG3** *Physical parameters*

convenor: Ludovico Spinosa

- **TG4** *Organic micro-pollutants Parameters*

convenor: Reimar Leschber

- **TG5** *Microbiology*

convenor: Melinda MAUX

- **TG6** *Inorganics Parameters*

convenor: Henri Ciesielski

# CEN/TC 308 Characterization of sludges :

Publications (40 standards/ 20 years) : Sample of publications :

- CEN/TR 13097:2010 : Characterization of sludges - Good practice for **sludge utilisation in agriculture** (WG2)
- CEN/TR 13714:2010 : Characterization of sludges - **Sludge management** in relation to use or disposal (WG2)
- CEN/TR 14742:2006 : Characterization of sludges - **Laboratory** chemical conditioning procedure (WG1)
- CEN/TR 15175:2006 : Characterization of sludges - Protocol for **organizing and conducting inter-laboratory** tests of methods for chemical and microbiological analysis of sludges (WG1)
- EN 14672:2005 : Characterization of sludges - Determination of **total phosphorus** (WG1)
- CEN/TR 13767:2004 : Characterisation of sludges - Good practice for **sludges incineration** with and without grease and screenings (TC 308)
- CEN/TR 15584:2007 : Characterisation of sludges - Guide to **risk assessment** especially in relation to use and disposal of sludges (WG3)
- CEN/TR 13983:2003 : Characterizataion of sludges - Good practice for sludge **utilisation in land reclamation** (WG2)



- **CEN/ISO Publications : Sampling methods via Vienna agreement**
- **EN ISO 5667-13 (rev.):** *Water quality -Sampling -Part 13: Guidance on **sampling of sludges** from sewage and water treatment (ISO/TC 147)*
- **EN ISO 5667-15 (rev.):** *Water quality. Sampling. Part 15 : guidance on **preservation and handling of sludge** and sediment samples (ISO/TC 147)*
- **EN ISO 16720:2007:** *Soil quality –**Pretreatment of samples** by freeze-drying for subsequent analysis (ISO/TC 190)*



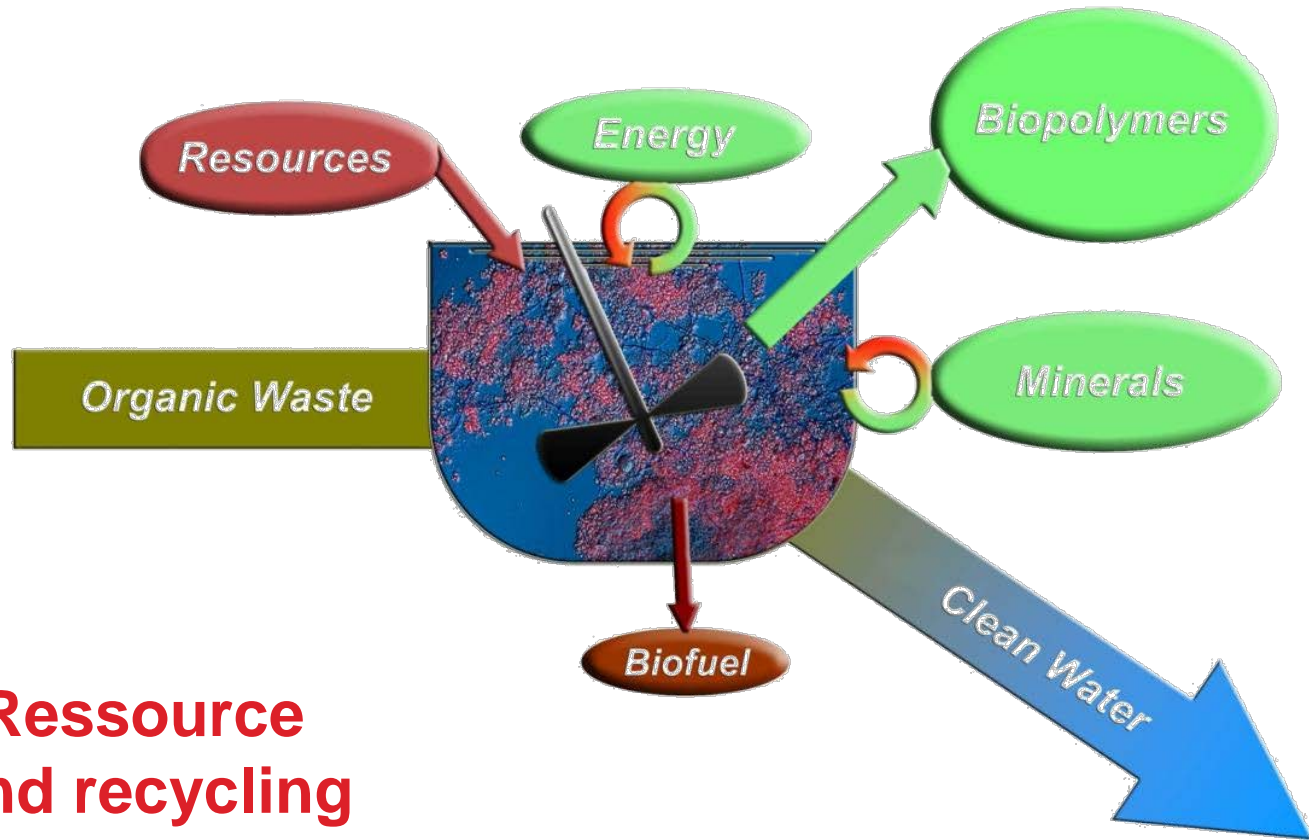


- **Development of horizontal analysis methods for Sludges, Wastes and Soils: (cooperation with PC400,DIN)**
  - Microbiology, Organic compounds...
- **New standards for physical parameters**
  - Determination of flowability, Determination of solidity, Determination of the specific resistance to filtration
- ***Revision of good practice guidelines (eg, Dewatering)***
- **Modify TR to TS guidelines**
  - *Sludge management in relation to use or disposal*
  - *Thermal processes*



# What's about the future?

# Sludge treatment...To a new paradigm



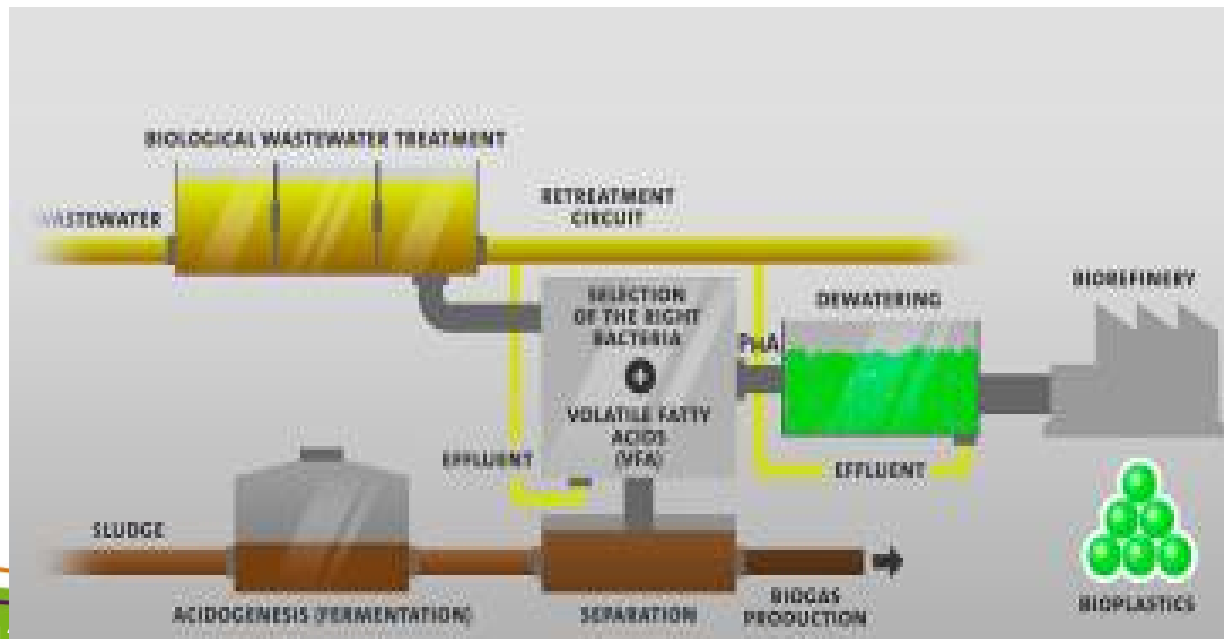
**Sludges = Ressource  
recovery and recycling**

# Sludge a raw material to produce plastic

Specific bacteria are used to produce Biopolymer from fatty acids

Advantages: Energy production ( Digestion)

Bioplastic production: eg. Bruxelles: between 5 and 10 kg per week



# Fertilizers Production and Energy recovery

- World phosphate production comes only from mining
- 80% of the production is used as fertilizers
- Resource will decrease after 2030
- P-P04 in Sludge (595 000 Tons) represent about 20% of today use
- **Technical solution: Struvite (MAP) production.**
  - ◆ Biological Phosphate removal on wet line
  - ◆ Anaerobic digestion = Biogas then Energy (60% self sufficiency)
  - ◆ dewatering
  - ◆ MgCl<sub>2</sub> addition in filtrate prior return to wet line
  - ◆ Purification and drying.

# Veolia Water experience: Berlin (BWB)

- Wassmanskorf WWTP
- 200 000 m<sup>3</sup>/d
- Sludge: 70 t dry matter daily
- Phosphates: 14 tons P-PO<sub>4</sub> daily
- Energy production: 650 KW/h



Pumping  
Station

Inlet structure

Primary  
cleaning

Activated sludge tanks

Final clarifiers

Digesters

Screening  
plant

Grid  
chamber

Sludge

Settling  
tanks

Biological Process

Sludge treatment (digesters,  
centrifuges and driers)



# Conclusion



- **Future WWTP is a self sufficient energy plant with**
  - ◆ Sludge as main resource to produce energy (digestion), organic raw materials ( bioplastic), minerals ( struvite)
  - ◆ Water as main resource to reduce energy consumption ( aeration, Nit/Denit)
  - ◆ A green plant with low environmental footprint
- **We are facing to an international concern that could benefit from ISO Standardization**
- **AFNOR submits to ISO TMB a new ISO TC**  
**“Sludges: organic matter & energy recovery”**



Thank you for  
your attention

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