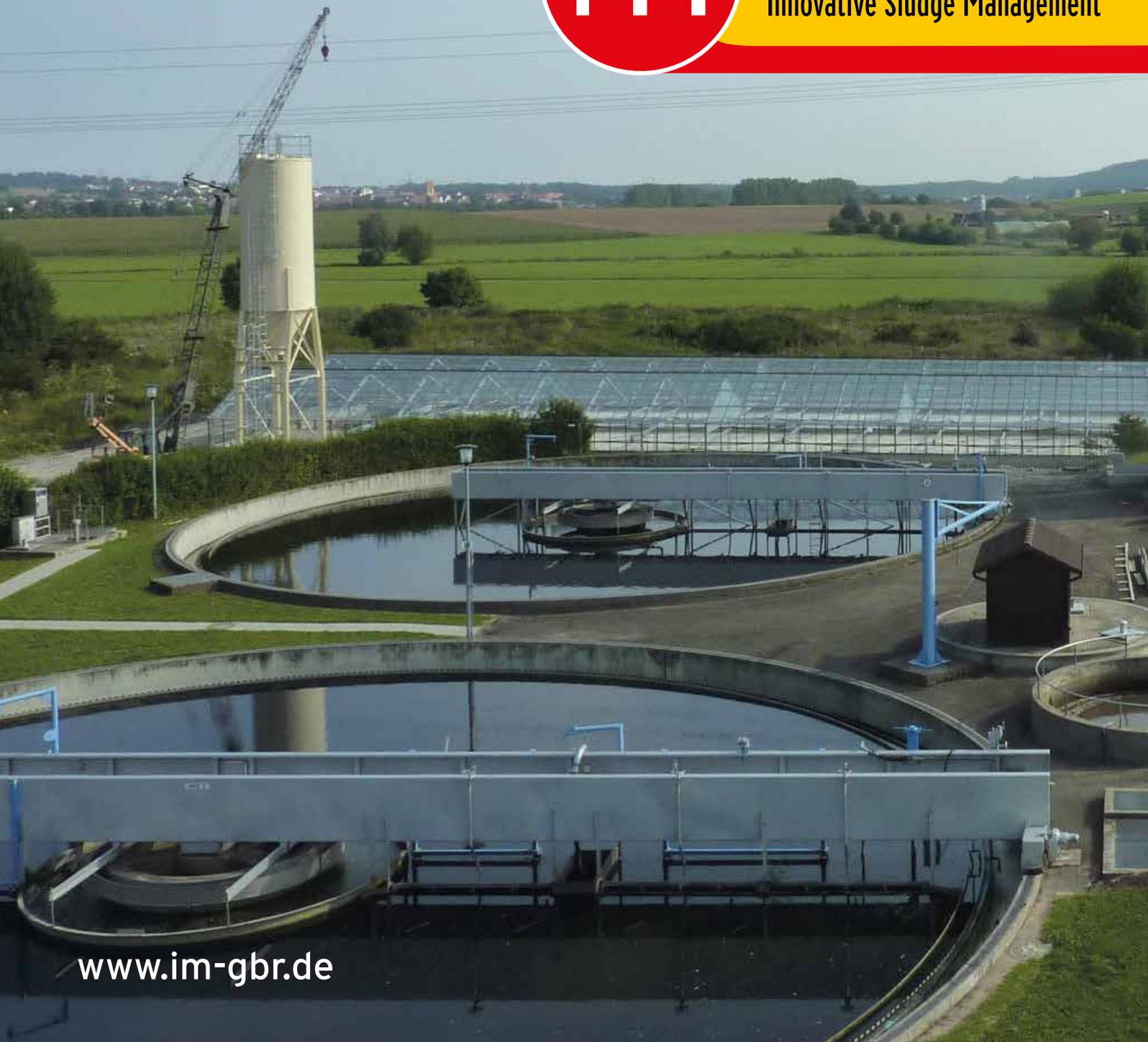


Intelligent Sludge Drying



ZiZMANN
Innovative Sludge Management



www.im-gbr.de

Intuitive innovative

Solar? Hybrid? - Both!

The i+M-System captivates by innovative flexibility. Thus it is the right choice for any location and any situation.

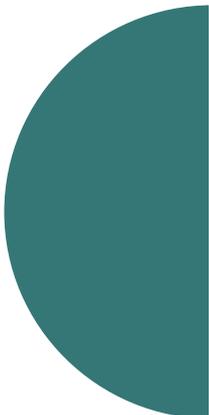
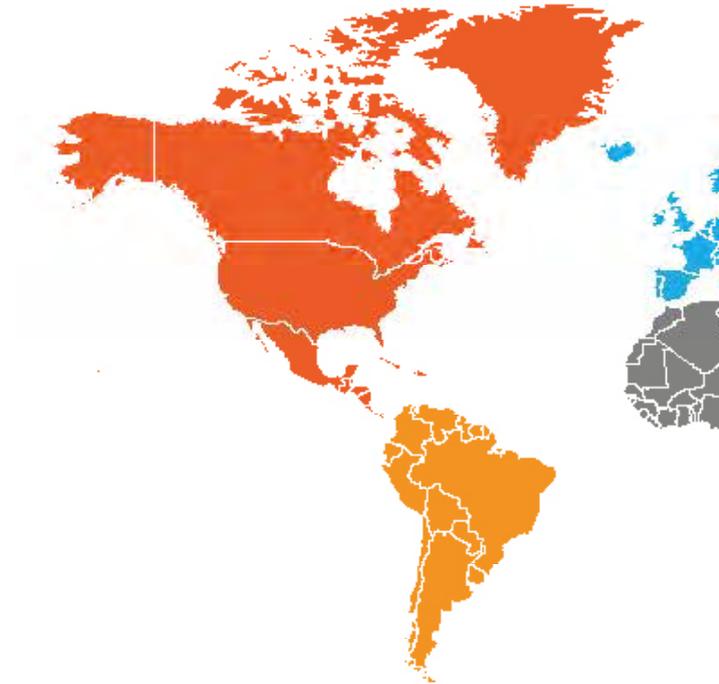
12 Tons Evaporation

Combination of intelligent heating and aeration technology makes the difference between standard solar drying and high efficiency drying with evaporation rates of 5 ton/m² per year with top performances up to 12 ton/m² - no matter if on 500 m² or 50,000 m² area.

Synergy Effects

Climate protection by heat recovery from external processes:

- Heat recovery WWTP
- Heat use CHP
- Post-operation after high temperature facilities

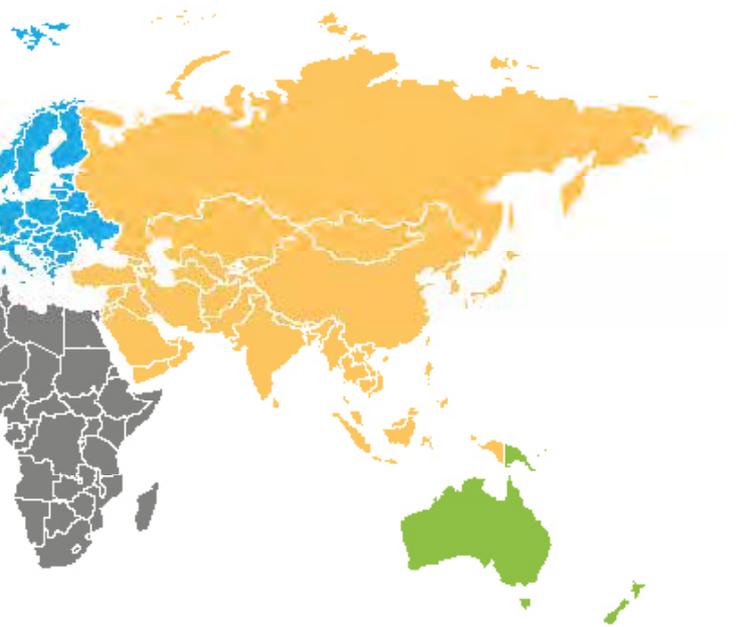


Turkey in summer, solar



Black Forrest in winter, hybrid





Interval increase

60 per hour

The turning system transports the sludge on the drying area at an average of every minute 24/7.

Added Benefit

Instead of one unit several turning units move the sludge simultaneously. Evaporation and water transfer from sludge to air increases area-wide.

Energy Efficiency

Responsible for sludge conveying is just one single drive gear motor per drying line. Location of drive technology at dry sludge side enables safe and easy service and maintenance without necessity of area access.



Drive unit at dry sludge area

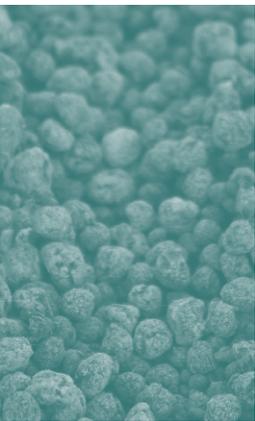


Drying minute-by-minute



Emission prevention

Good climate between man and environment:
CO₂ neutral sludge drying, emission reduction and
hygienization in one step - clever with i+M-Zizmann.

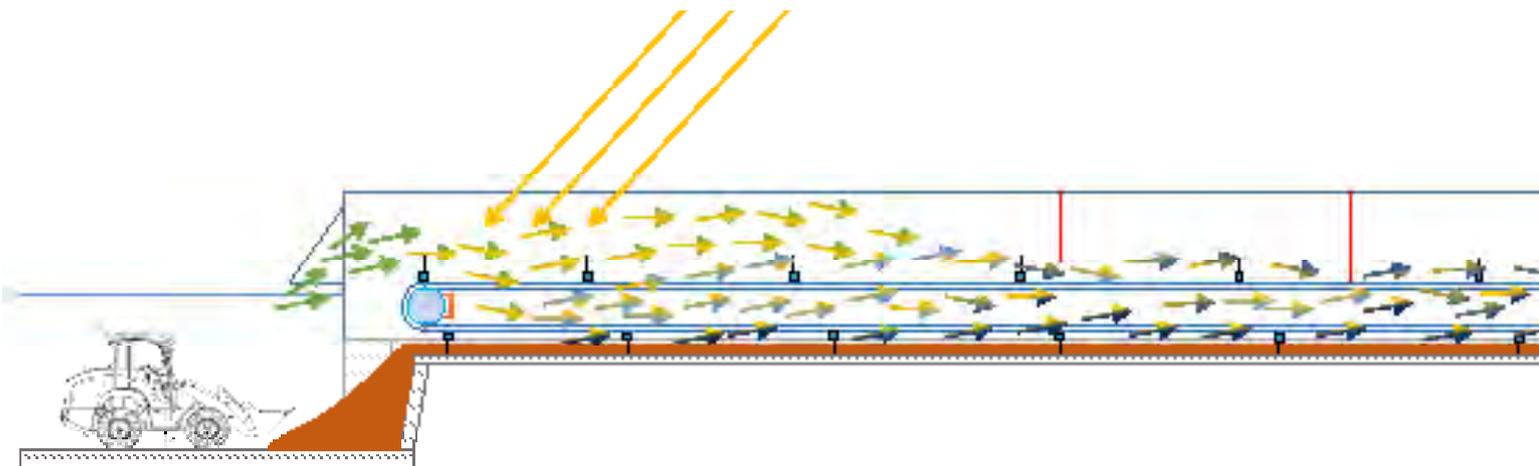


Close-to-Floor & Gentle

Almost soundless the system moves the sludge continuously and soft. Comparable to chain conveyor systems of post-treatment basins at WWTP the i+M-System the turning system „harrows“ through the material and allows constant drying process up to above 90% DS without significant dust occurring.

5-8 Against Smell

Thin sludge thickness of 5-8cm prevents stagnant moisture inside sludge layer. Reduction of anaerobe milieus - often reason of unpleasant odor - is understood by us. By area-wide and numerous sludge turning sequences sludge flow targets got reached or even increased.



Air flow management

After thermal influence and turning system provides water on sludge surface for evaporation a controlled air stream absorbs moisture from sludge for leading it out of the drying hall.



140,000 / 1,000

Sludge gets dried efficiently inside the i+M-plant by up to 140,000 m³/h air per 1,000 sqm area.

Controlled air streaming with high exchange rates guarantees:

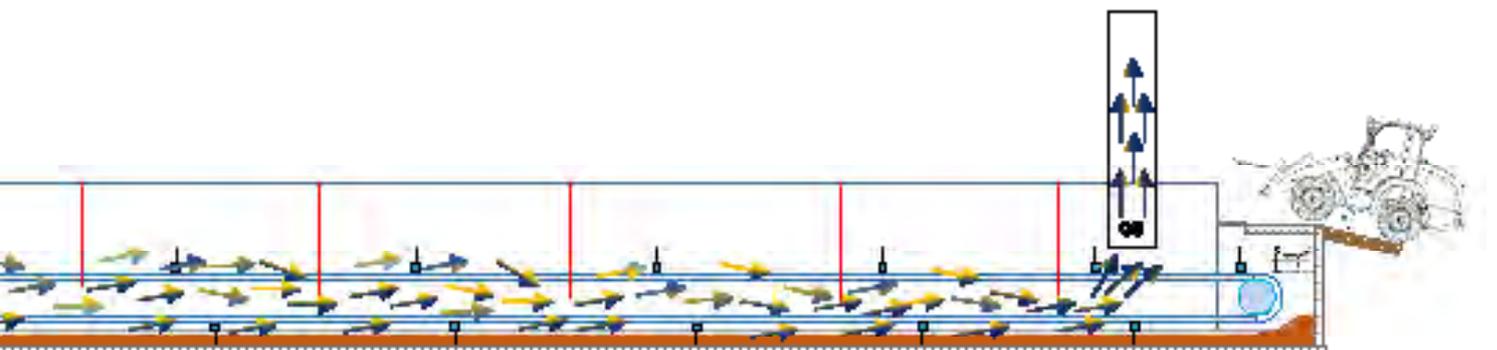
- Use of ambient energy
- Incredible air saturation
- Surface cooling / evaporation chill
- Odor reduction

Air Treatment

Experiences show:
Every sludge is different everywhere.

For problematic sludges classic air treatment systems can be connected easily:

- Biological filter
- Mineral filter
- Chemical washer



Individual References



Feeding Options

- Combination incl. dewatering system
- Belt conveyor from adjoining storage
- Bunker incl. hydraulic



Operation Modus

- PLC control system
partly or full automatized
- DS-contents $\geq 90\%$
without adhesion phase
- DS-optimized air management



Discharge Options

- Bucket conveyor with
Ex-Protect-Silo
- Underground storage with
chain conveyor
- Belt conveyor, wheel loader, etc.



Heat Recovery

- Naturally:
Solar energy and wind
- External heat:
Floor heating and air heating

Performance compact

Engineering & Turn-Key

National i+M GmbH & Co.KG offers total performances out of one source as EPC.

International we act as engineering provider and supplier of our core technology for sludge drying.

Sludge Drying Plant

- Dimensioning and design
- Civil works
- Building construction
- Intelligent technology control
- Installation and commissioning
- Maintenance and repair
- Retrofitting and improvement competitive systems up to $\geq 90\%$

Extra performance WWTP

- Consulting WWTP operation improvement
- Energetic digester improvement
- Expansion and retrofitting of WWTP

Heat concepts

- Digester CHP
- District heat pipe industrial CHP
- Heat recovery waste water
- Heat extraction from compressors, aeration aggregates etc.



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