

TERCIARIOS



Hotel Barcel?, Riviera Maya, M?xico

Municipal

Country	Mexico
Application	Tertiary treatment
Flow rate	180 m ³ /h
Water source	WW treatment plant
Filtration degree	70 micron
Filtration solution	2 x (3"SKx6) Ex.S.
Installation date	January 2014





Municipal

Country Mexico

Application Tertiary treatment

Flow rate 432 m³/h

Water source Activated sludge

Filtration degree 55 micron

Filtration solution 24 x 4" Galaxy

Installation date July 2014





ETA Indaia – SABESP

UF/MF Membrane Protection

Country	Brazil
Application	DWTP - Pre-filtration for UF
Flow rate	360 m3/h
Water source	River Water
Filtration degree	130 microns & 800 micron
Filtration solution	6 x batteries of 4 x 3" Spin Klin; on 6" PP manifold, LCE 1 x 10" ABF-6000
Installation date	Sep. 2014





Municipal



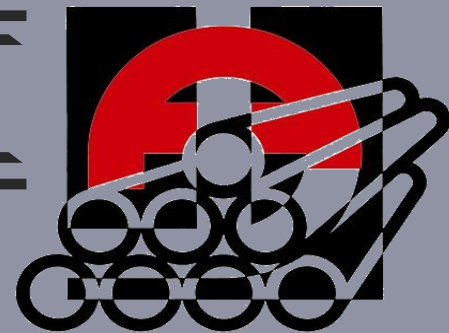
Project name	SAPAL LEON
Country	MEXICO
Application	TERTIARY
Flow rate	540 m ³ /h
Water source	PTAR
Filtration degree	50 + 10
Filtration solution	4 x MCFM + 54 Sand media
Installation date	NOVEMBER 2013
Contact person	



AMIAD FILTRATION SYSTEMS



WWTP Pre Filtration



What can Amiad offer to market today

Waste Water Treatment Plants

- Tertiary treatment to protect utilities (50 to 800 μ)
- Tertiary UV protection (10 to 50 μ) in scarce applications
- Tertiary pre filtration of membranes in re use applications (New water Singapour)
- Some tertiary traditional sand filtration (Australia)



Market Segments issues in Municipal Water treatment

Waste Water

- Plant automation requires automatic filtration of utility waters in existing and new installations
- Quality of outlet effluent has become a major issue
- Space requirement of advanced tertiary treatment



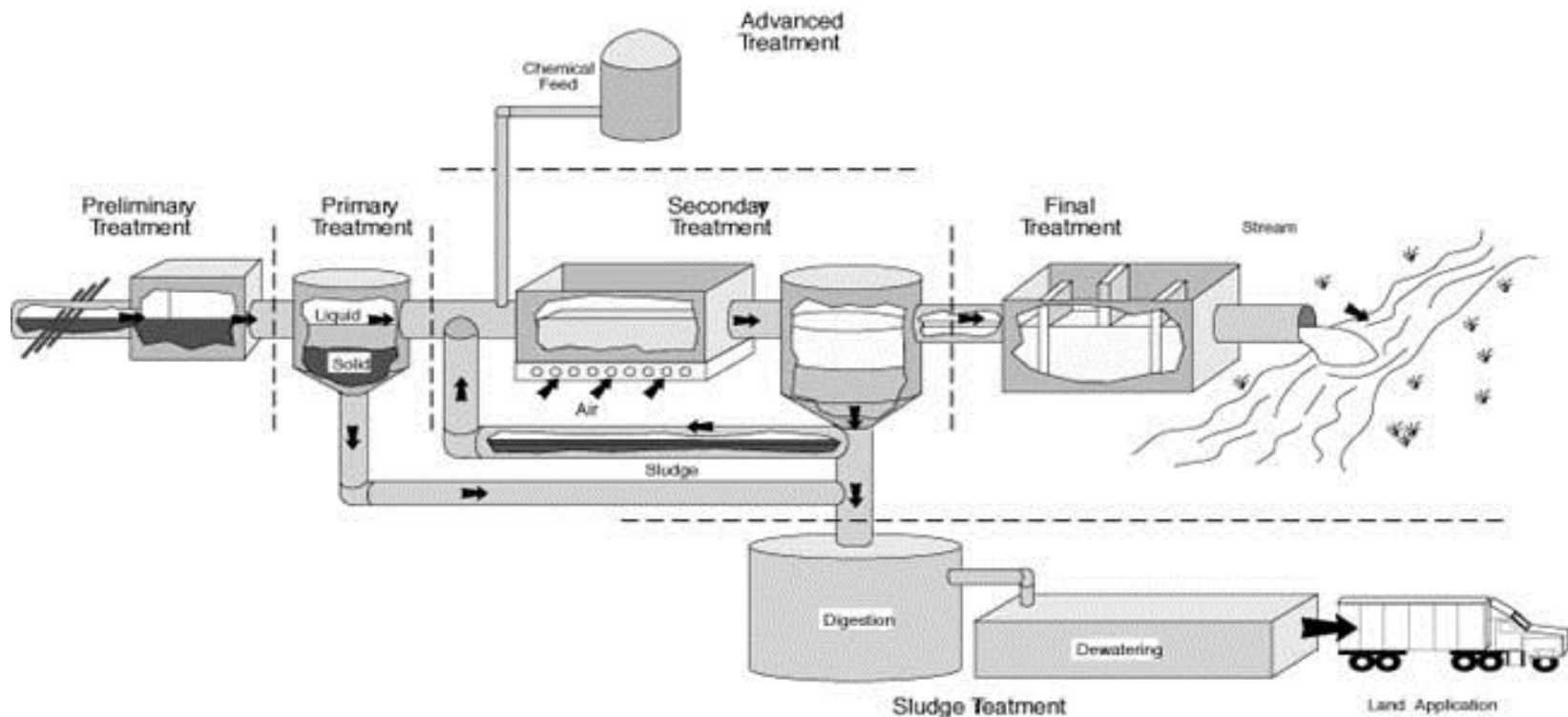
What has changed in Waste Water Treatment in Europe

- Impact of new EU regulations:
 - Reduction of max TSS to 35mg/l
 - Reduction of max BOD to 25mg/l.
 - Reduction of max COD to 90mg/l+ phosphor and Azotes 1mg/l ...
- More stringent environment aquifer protection has enduced development or membrane technologies in re use



What has changed in Water Treatment Waste Water

Impact of new EU regulations: •
Only biological treatments can comply



Amiad automatic filters in WWTP:

- Possible applications:
 - Between primary and secondary treatments (800 to 1500 μ coarse particules and fibers)
 - Industrial water needs (injection pumps, pump cooling for sludge and drying, nozzles in belt filters) 50 to 500 μ
 - Tertiary treatment ...



The tertiary treatment issue

- Tertiary treatment:
 - Reduction of TSS (10 or 5mg/l)
 - Protection of UV (from 15 to 5mg/l)
 - Ensure biological and chemical parameters
 - Re use through MF or UF + RO
- Screen filtration TSS capacities
 - 50 μ : 10 to 20% reduction
 - 25 μ : 25 to 45% reduction
 - 10 μ : 35 to 60% reduction
 - 3 μ thread : 70 to 95% reduction

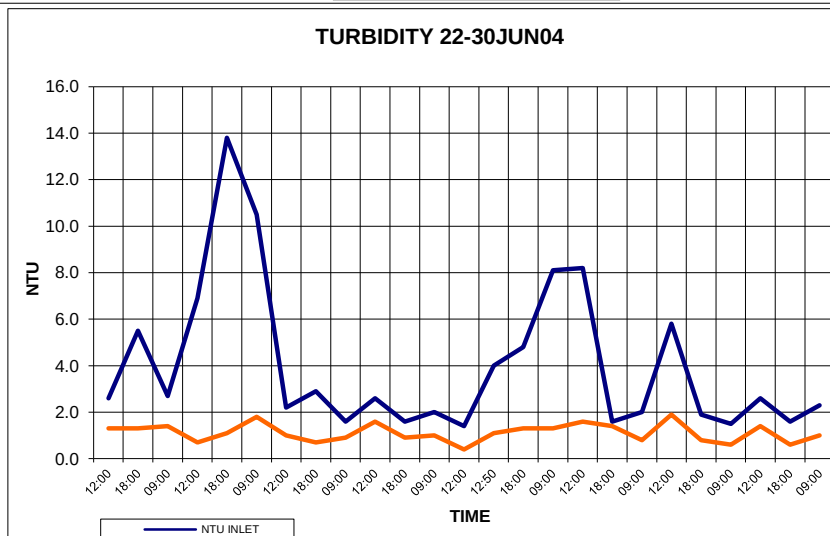
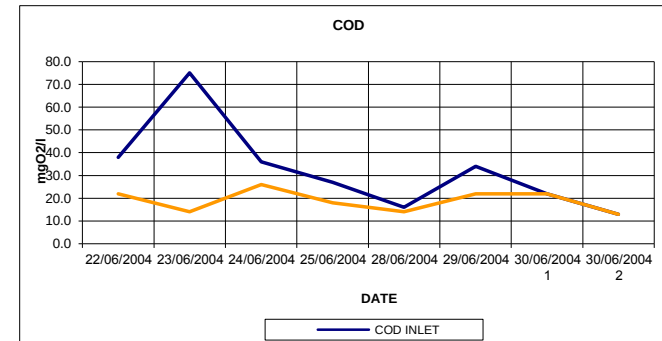
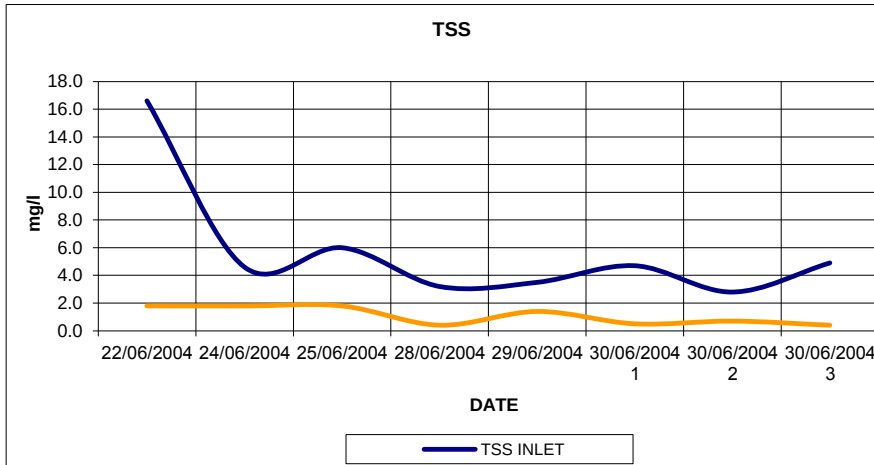


The tertiary treatment issue

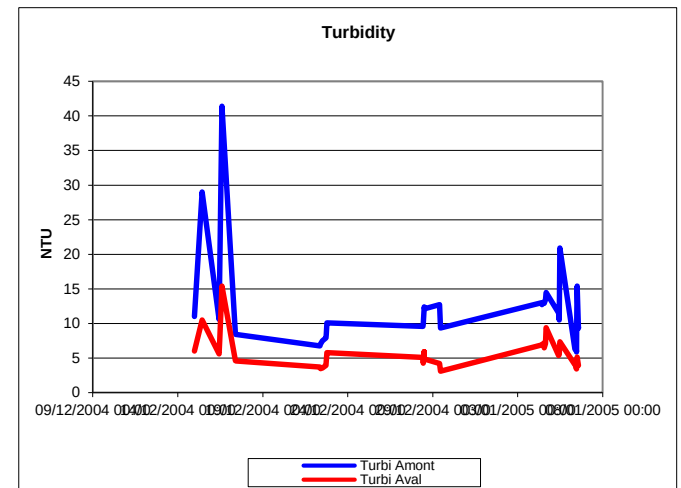
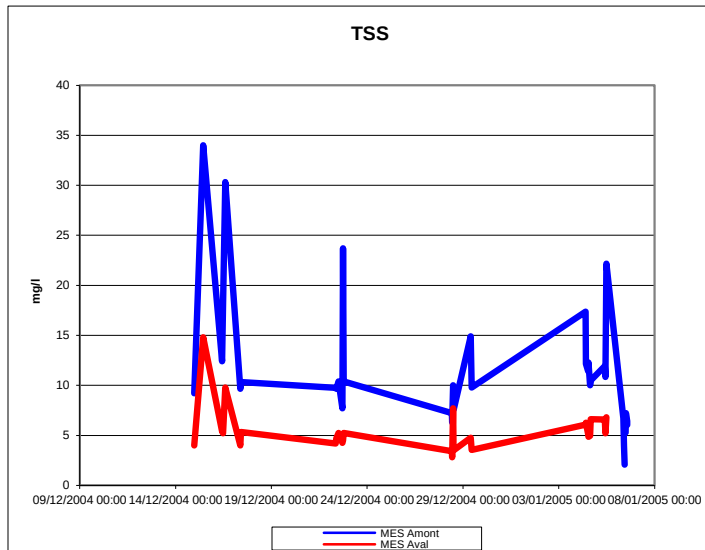
- Tertiary treatment:
 - 25 μ can be valid as security polishing for peaks
 - 25 μ can be valid for UV open canal to reduce lamp investment and energy savings
 - Thread technology can offer viable solution with guaranties on TSS / NTU / BOD
- AMF possible solutions in WWTP
 - UV pre filtration
 - Re use before membrane
 - Allow old installations to meet new EU specifications
 - Offer process option in alternative technology such as bio discs.



Pilot TEST 1 WWTP: activated sludge



Pilot TEST 2 WWTP: Physico Chemical + bio discs



From pilot testing to full scale validation
Typical test unit based in a AMF93K unit



Thread Technology and Tertiary in WWTP

- What has been established by pilot test
 - Effective TSS reduction for most applications
 - Good cleaning performance
 - Capacity to handle TSS peaks
- Flow capacity : pilot test showed for equivalent up to 50 m³/h per 93K cartridge / 1 to 2 cycles an hour



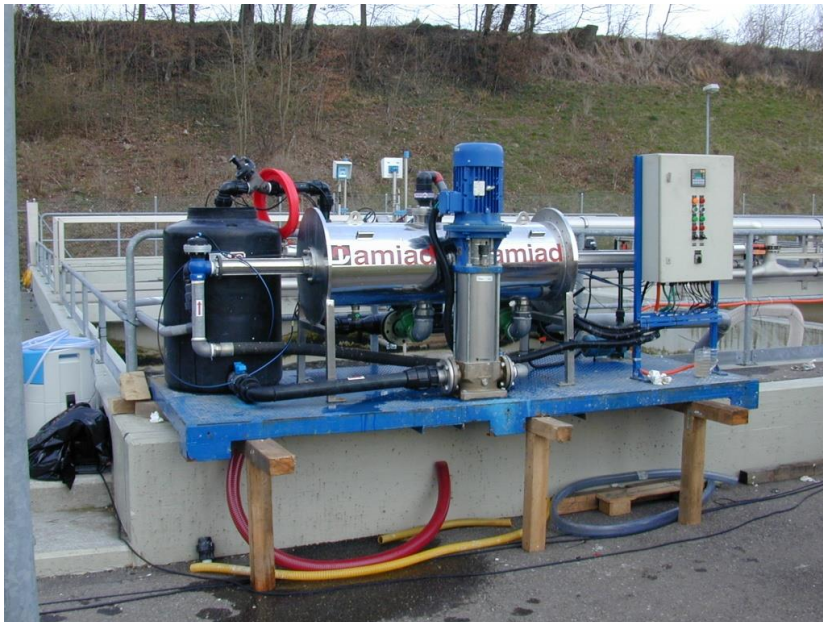
Example of R&D test in WWTP with Thread

Test filter capacity to replace clarification by reducing $\text{TSS} < 30\text{mg/l}$ after secondary



Example of R&D test in WWTP with Thread

Test with AMF3 pilot with 20 μ cassettes



Example of R&D test in WWTP with Thread

Preliminary results :

average TSS: inlet 90 to 130mg/l / outlet : 4 to 16mg/l

Simulated flow in AMF93K : 80m³/h / Cycle intervals : 25 to 70min

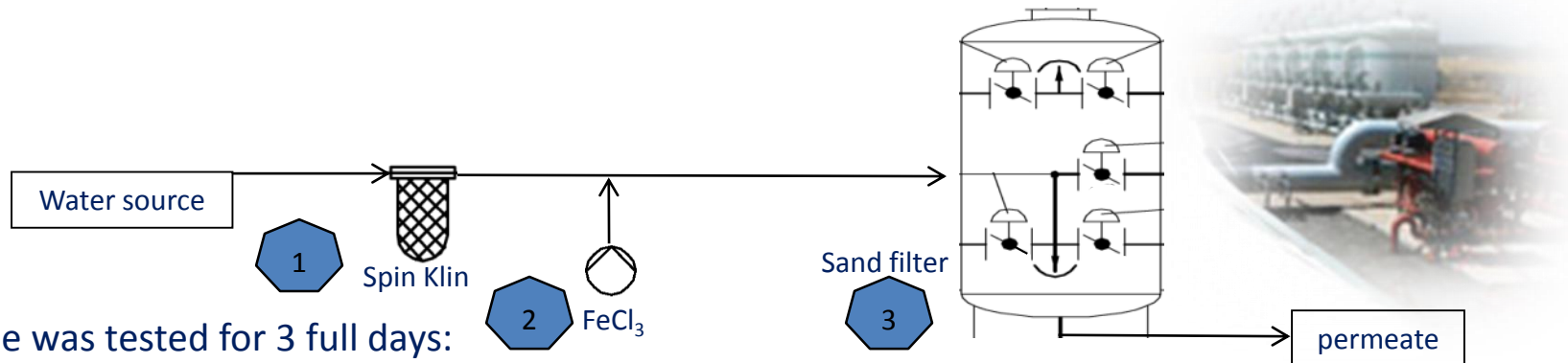


Tertiary Treatment Plant, Israel 2007



Water source: secondary treated effluents of municipal wastewater

Full -scale system tests of four different operation regimes.



Each regime was tested for 3 full days:

Date	Operation regime	Process description	Average turbidity removal (%)	Average Inlet turbidity (NTU)
1/8/07	Sand (3)	Standard Tertiary treatment by sand filter without any pre-filtration or injection of chemicals.	13	4.04
9/8/07	Spin Klin + Sand (1) + (3)	Treatment by sand filter with Spin Klin disc pre-filtration , without injection of chemicals	26	2.2
14/8/07	FeCl ₃ + Sand (2) + (3)	Treatment by sand filter without Spin Klin pre-filtration, with injection of Ferric Chloride	57	4.99
7/8/07	Spin Klin+FeCl ₃ +Sand (1) + (2) + (3)	Treatment by sand filter with Spin Klin disc pre-filtration , followed by injection of Ferric Chloride	73	3.79

Thank you