

About TADOX® Technology

- TERI Advanced Oxidation Technology (TADOX®) aims at treating Industrial and Municipal Sewage Wastewater streams having high colour, COD, BOD, TOC, non-biodegradable, recalcitrant and persistent organic pollutants (POPs), micropollutants and pathogens.
- TADOX® involves novel primary treatment and UV-Photocatalysis as an Advanced Oxidation Process (AOP) as secondary treatment; where in-situ generation of hydroxyl radicals take place, leading to oxidative degradation and mineralization of pollutants.
- TADOX® is developed through DST-Water Mission, Water Technology Initiative (WTI) Program of Ministry of S&T, Govt. of India.
- TADOX® is under TERI's Patent and Registered Trademark and winner of several Technology Innovation Awards.

Techno-Economic Benefits

- In case of Industrial Wastewater Treatment (WWT), based on the requirement, TADOX® could be integrated at pre-biological stage to improve biodegradability or post-biological stage to remove recalcitrant organics or at a polishing stage of an existing ETP/CETP.
- Adequately treated water from TADOX®, going to subsequent tertiary treatment, helps in prevention of biofouling and choking of membranes, enhance life span and efficiency of RO systems and reduce load on subsequent evaporators like MEE and MVR enabling

- sustainable and affordable ZLD compliance with 90-95% water reuse efficiency.
- Having small footprint, reduced Hydraulic Retention Time (HRT) and together with resource & energy efficiency, TADOX® integration is expected to bring down ZLD CAPEX by 20-25% and OPEX by 30-40% than current value.
- In case of municipal sewage treatment, TADOX® could be applied after biological treatment to further improve water quality or TADOX® could be directly used for treatment, bypassing any kind of biological treatment, thus reducing footprint in municipal sewage treatment. Together with reduced treatment time to few hours as compared to avg. 12-24 h in conventional treatment, TADOX® makes an excellent choice in improving current capacity & efficiency of STPs.
- TADOX® involves nanotechnology and less use of chemicals in the overall treatment leading to bare minimum and non-toxic sludge, preventing issues of secondary pollution.
- TADOX® could also serve as Decentralized Wastewater Treatment Technology (DWWT).



First TADOX Wastewater Treatment Plant at TERI Gurugram Campus

About Us

The TADOX® Technology Centre for Water Reuse is a dedicated new Area in Water Resources Division of TERI working towards R&D, technology transfer and implementation of TADOX® (TERI Advanced Oxidation) Technology, training & capacity building, Research leading to Ph.D, publications, policy interventions and contributing to Missions of National importance like 'Namami Gange', 'Self Reliant India' and others.

Implementation Sectors INDUSTRIAL

- Textile
- Dye & Dye Intermediate
- Tannery
- Slaughterhouse
- Chemical & Fertilizer
- Oil & Gas
- Food & Beverage
- Paper & Pulp
- Pharmaceutical & AMR
- Distillery & Sugar
- Soap & Detergent Manufacturing
- Construction & Housing
- MEE & Low boiler Condensates
- Others

Implementation Sectors SURFACE WATER

- Grey Water
- Black Water
- Sewage
- Municipal
- Open Drains

Target Parameters

- Color
- COD
- BOD
- TOC
- POPs
- Micropollutants
- Pathogens

Application Areas

- Zero Liquid Discharge (ZLD)
- Water-Reuse
- Decentralized Wastewater Treatment (DWTT)
- Lake rejuvenation
- River Cleaning Programs
- Jal Jeevan Mission (Urban)



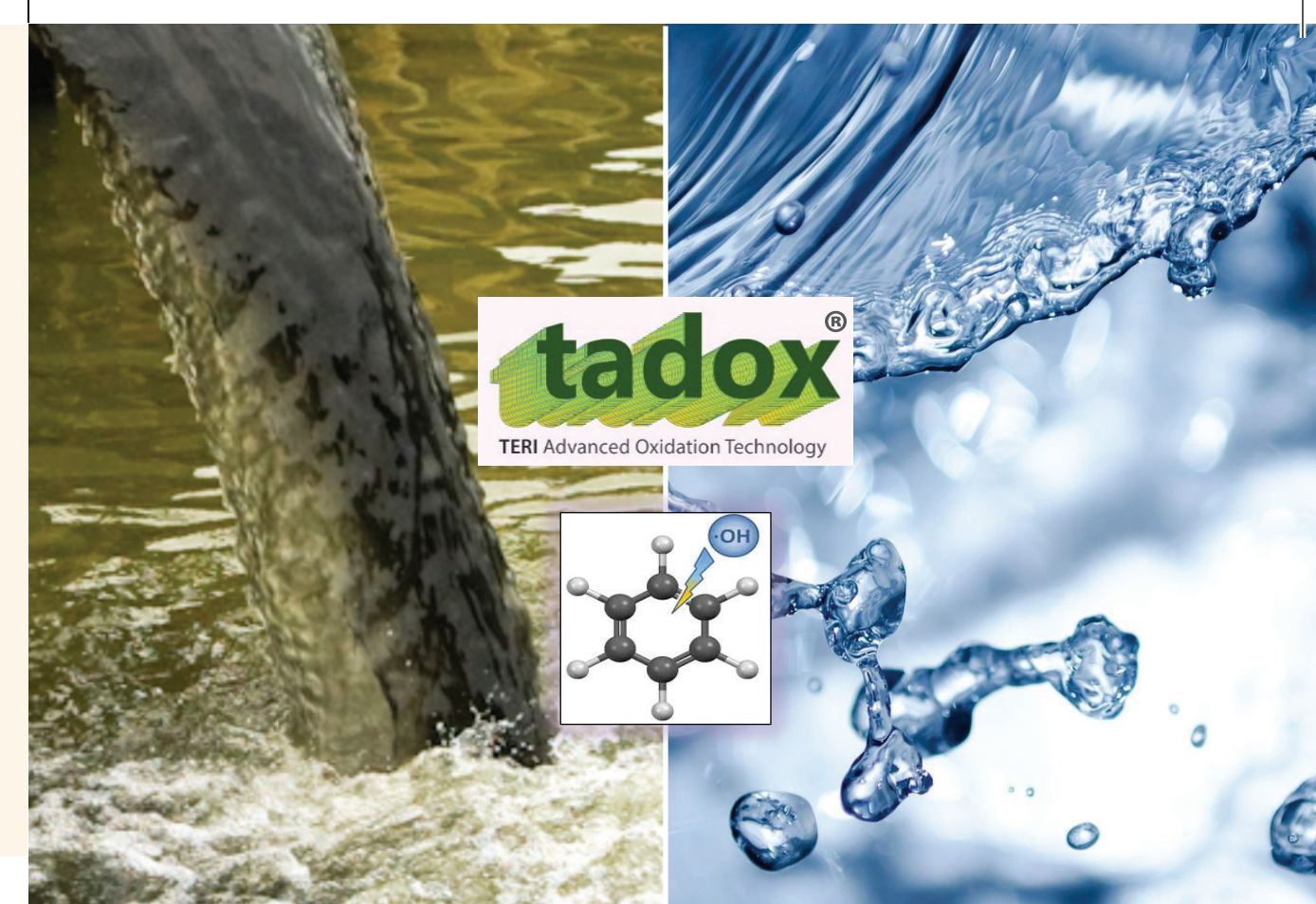
THE ENERGY AND RESOURCES INSTITUTE
Creating Innovative Solutions for a Sustainable Future

FOR FURTHER DETAILS PLEASE CONTACT

Dr. Nupur Bahadur

Senior Fellow and Area Convenor, TADOX® Technology Centre for Water Reuse, Water Resources Division
Email: nupur.bahadur@teri.res.in
Website: www.teriin.org/water

The Energy and Resources Institute (TERI), Darbari Seth Block
India Habitat Centre Complex, Lodhi Road, New Delhi – 110003
Tel: +91-11-2468 2100 or +91-11-2468 2111
Fax: +91-11-2468 2144 or +91-11-2468 2145



TADOX® TECHNOLOGY CENTRE FOR WATER REUSE



ENERGY



AGRICULTURE



ENVIRONMENT



HABITAT



RESOURCE
SECURITY



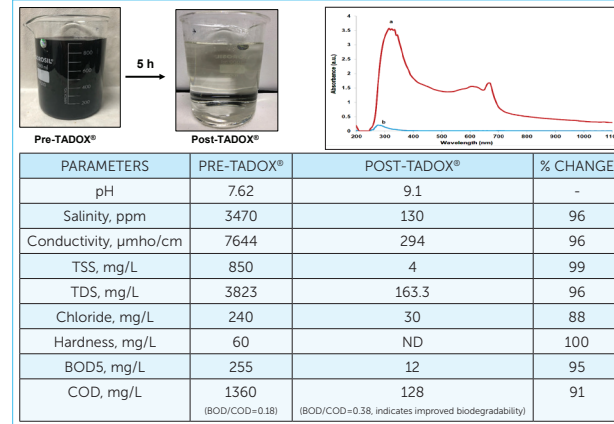
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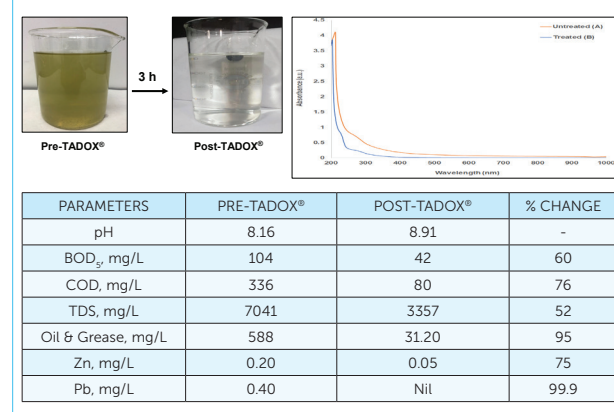
HEALTH
& NUTRITION

Industrial Wastewater Treatment

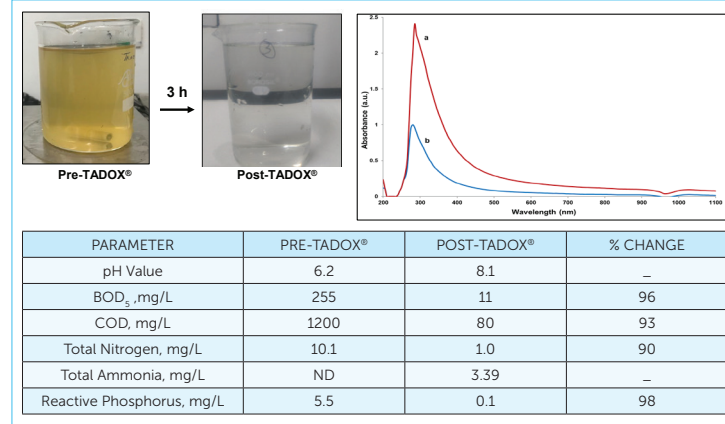
TADOX® in Textile WWT



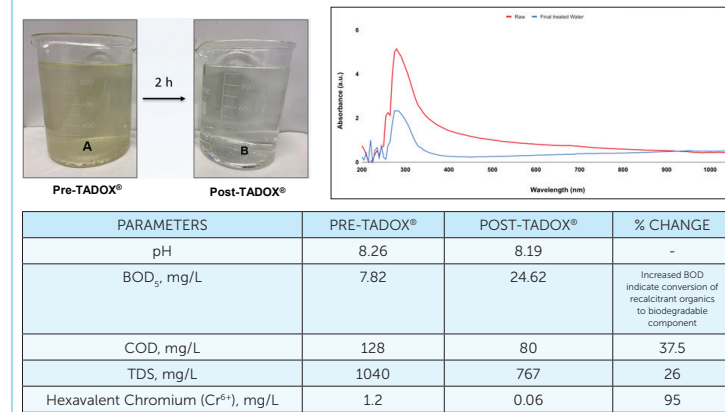
TADOX® in Oil & Gas WWT



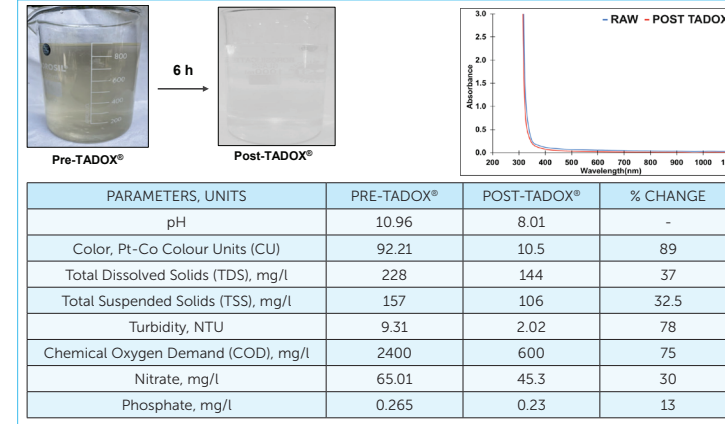
TADOX® in Pharmaceutical / API WWT



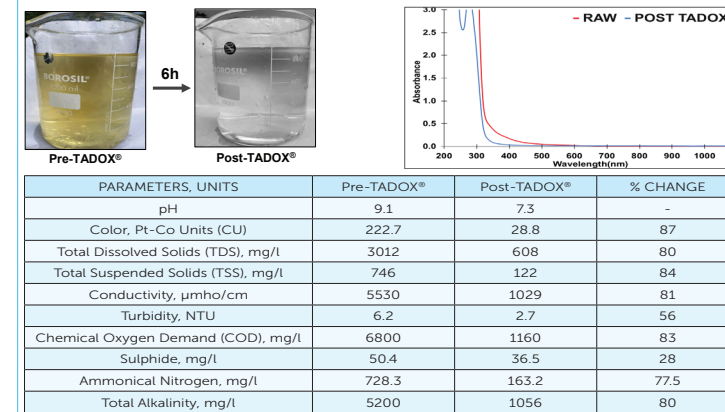
TADOX® in Tannery WWT



TADOX® in polishing of MEE Condensate



TADOX® in polishing of Distillery Slop Condensate



Municipal Sewage Treatment

Current Conventional Treatment

STP INLET	
pH	7.9
Colour, (Pt- Co) (CU)	185
COD, mg/L	650
BOD, mg/L	261
TSS, mg/L	380
Total N, mg/L	32.0
Total P, mg/L	81.2
E. coli, MPN/100 ml	1.02 x 10 ⁵
Total Coliform bacteria, MPN/100 ml	6.12 x 10 ⁵
Total count, CFU/100 ml	5.24 x 10 ⁵

STP OUTLET	
pH	8.2
Colour, (Pt- Co) (CU)	125
COD, mg/L	400
BOD, mg/L	78
TSS, mg/L	110
Total N, mg/L	30
Total P, mg/L	13
E. coli, MPN/100 ml	1.21 x 10 ⁴
Total Coliform bacteria, MPN/100 ml	1.13 x 10 ⁵
Total count, CFU/100 ml	1.84 x 10 ⁴

TADOX® Treatment

DIRECT END-TO-END TADOX®	
pH	8.0
Colour, (Pt- Co) (CU)	8
COD, mg/L	64
BOD, mg/L	7
TSS, mg/L	<5
Total N, mg/L	1.9
Total P, mg/L	<1
E. coli, MPN/100 ml	16
Total Coliform bacteria, MPN/100 ml	1.16 x 10 ²
Total count, CFU/100 ml	28

TADOX® AT POLISHING STAGE	
pH	8.1
Colour, (Pt- Co) (CU)	5
COD, mg/L	46
BOD, mg/L	<3
TSS, mg/L	<5
Total N, mg/L	1.7
Total P, mg/L	<1
E. coli, MPN/100 ml	<8
Total Coliform bacteria, MPN/100 ml	3.13 x 10 ²
Total count, CFU/100 ml	11

*Wastewater quality parameters analyzed at a National Accreditation Board for Testing and Calibration Laboratory (NABL), Delhi as per ISO/ IEC 17025:2005.



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HABITAT



RESOURCE SECURITY



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HEALTH & NUTRITION



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