

## Awards and Recognitions



**Design & Manufacturing Technologies for 'Make in India'**  
7<sup>th</sup> Dec 2015  
Ministry of Science & Technology, Govt. of India



**STE Water Award Technology Innovation**  
22<sup>nd</sup> Oct 2019  
STE-Save the Environment, Society for Research & Awareness, Kolkata



**Aqua Foundation Excellence Technology Development**  
30<sup>th</sup> Oct 2019  
Aqua Foundation, New Delhi & Ministry of Jal Shakti, Govt. of India



**FICCI Water Award Innovation in Water Technology**  
23<sup>rd</sup> Nov 2022  
Federation of Indian Chambers of Commerce & Industry Water Mission



## IWA-Project Innovation Award 2024 SILVER

Category: Breakthrough in Research & Development  
(13<sup>th</sup> Aug 2024, Toronto, Canada)

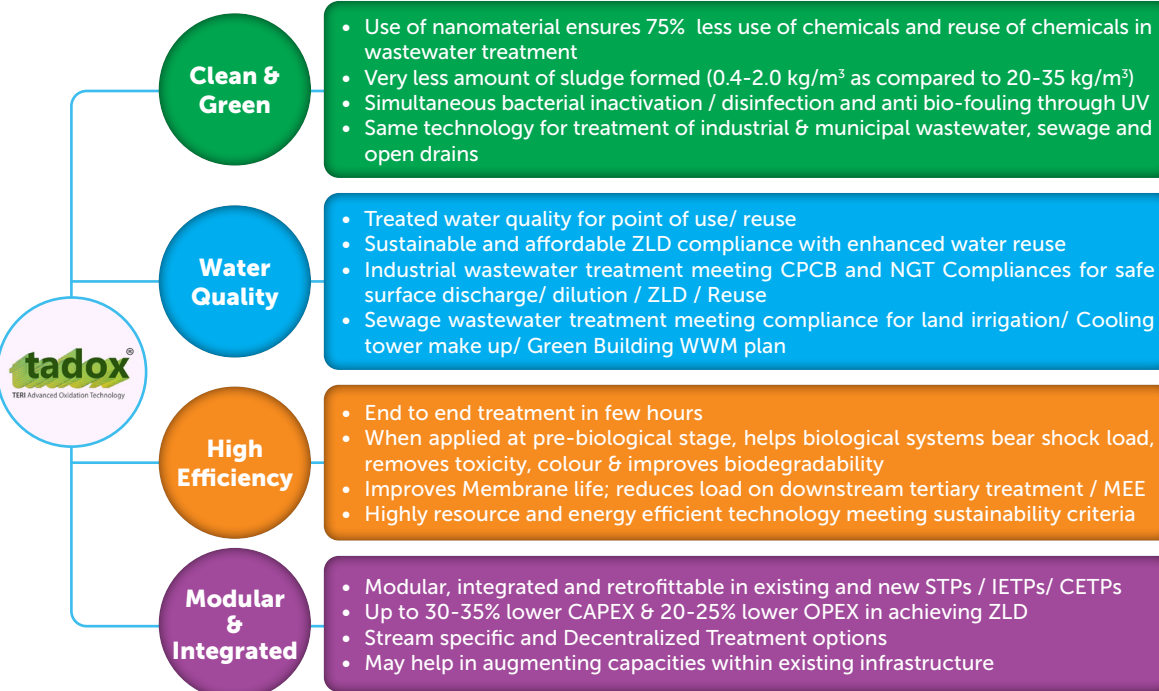


## Valuable Contributor Award

Category: Green Leadership  
(4<sup>th</sup> Oct 2024, GRIHA, New Delhi)



## OVERALL BENEFITS



## SAME TECHNOLOGY-WIDE APPLICATION AREA

Implementation Sectors (Industrial)	Implementation Sectors (Surface Water)	Target Parameters	Application Areas
<ul style="list-style-type: none"> <li>Textile</li> <li>Tannery</li> <li>Chemical &amp; Fertilizer</li> <li>Pesticide</li> <li>Food &amp; Beverage</li> <li>Pharmaceutical &amp; AMR</li> <li>Laundry</li> <li>Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>MEE &amp; Low boiler condensates</li> <li>Dye &amp; Dye Intermediate</li> <li>Slaughterhouse</li> <li>Oil &amp; Gas</li> <li>Paper &amp; Pulp</li> <li>Distillery &amp; Sugar</li> <li>Construction &amp; Housing</li> <li>Others</li> </ul>	<ul style="list-style-type: none"> <li>Color</li> <li>COD</li> <li>BOD</li> <li>TOC</li> <li>POPs</li> <li>Micropollutants</li> <li>Pathogens</li> </ul>	<ul style="list-style-type: none"> <li>Decentralized Wastewater Treatment (DWTT)</li> <li>Zero Liquid Discharge (ZLD)</li> <li>Water-Reuse</li> <li>Lake/Pond rejuvenation</li> <li>River Cleaning Programme</li> <li>Jal Jeevan Mission (Urban)</li> <li>AMRUT</li> <li>Water Vision @2047</li> <li>Swatchh Bharat Mission</li> </ul>



1 KLD tadox® treating Sewage of Bharat Mandapam during India Water Week, and visited by the Secretary, DoWR, RD&GR, Ministry of Jal Shakti, Gol - Sept, 2024



20 KLD tadox® WWT plant in Textile CETP, Kanpur under 'Namami Gange' Program; Inauguration by DG NMCG - Feb, 2023.

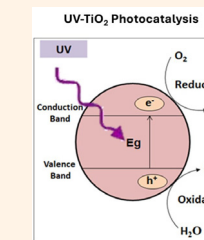


10 KLD tadox® WWT plant treating mixed sewage in TERI, Gurugram since Aug. 2020; Visit by Dy CM Haryana - October, 2022

## About tadox®

The Energy and Resources Institute (TERI) developed a patented technology called TERI Advanced Oxidation Technology (tadox®) for adequate treatment of municipal sewage, open drains, landfill leachate and industrial wastewater. It involves UV-TiO<sub>2</sub> Photocatalysis where in-situ generation of hydroxyl radicals leads to oxidative degradation and mineralization of targeted pollutants and is highly effective in treatment of wastewater stream containing high color, COD, BOD, TOC, dissolved organics, micropollutants, non-biodegradable and persistent organic pollutants (POPs).

<https://youtu.be/xzgzubocusk>



tadox® was developed through DST-WTI, Ministry of Science & Technology, Govt. of India and now piloted successfully in the Namami Gange National Mission, Ministry of Jal Shakti, Govt. of India. This technology was demonstrated in a Textile Common Effluent Treatment Plant (CETP) in Roama Industrial Area, Kanpur, making it a global 1<sup>st</sup>-of-its-kind initiative of demonstrating UV-Photocatalysis for wastewater treatment at 20 KLD and this project bagged Silver Award in the IWA Project innovation Awards 2024.

## FOR FURTHER DETAILS PLEASE CONTACT

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<https://youtu.be/xzgzubocusk>  
NTCoE & TADOX® video link

**ION EXCHANGE**  
Refreshing the Planet  
<https://ionexchangeglobal.com/>

**DEW**  
<https://www.dewindia.com/>



**TADOX® TECHNOLOGY**





## Industrial Wastewater Treatment

**(Uttar Pradesh & Uttarakhand)**

**Textile CETP, Kanpur, 20KLD Plant**

**Tannery ETP, Kanpur**

**Punjab, Haryana, Andhra Pradesh & Kerala**

**Textile ETP, Ludhiana**

**Petrochemical Industry, Panipat 10KLD Plant**

**Maharashtra, Tamil Nadu & Gujarat**

**Chemical Manufacturing, Raigad**

**Electronics Manufacturing, Hosur**

**(Uttar Pradesh & Uttarakhand)**

**Slaughter House, Agra**

**Pharmaceutical Industry, Rishikesh**

**Chemical Manufacturing ETP, Nellore**

**Chemical Manufacturing ETP, Kochi**

**Oil & Gas Industry, Ahmedabad**

**MEE Condensate, Bharuch**

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

## Municipal Wastewater, Sewage and Open Drain Treatment

**Delhi & Haryana**

**Current Conventional Treatment**

Parameters	STP Inlet	STP Outlet
pH	7.2	7.2
Colour, (Pt-CO) (CU)	292.4	116.4
TDS, mg/L	342	368.0
BOD, mg/L	115.00	32.00
PO <sub>4</sub> , mg/L	4.45	0.50
NO <sub>2</sub> , mg/L	0.11	0.19
NH <sub>4</sub> , mg/L	7.20	3.20
E Coli, MPN/100ml	1.32x10 <sup>4</sup>	6.0x10 <sup>2</sup>
Total Coli, MPN/100ml	8.9x10 <sup>4</sup>	2.3x10 <sup>3</sup>

**Municipal STP, Delhi**

**STP Inlet**

**24 h**

**STP Outlet**

**Direct tadox®**

**5 h**

**tadox® @ Polishing**

**3 h**

**tadox® Treatment**

Parameters	Direct TADOX	TADOX @ Polishing
pH	8.0	8.8
Colour, (Pt-CO) (CU)	1.4	<1
TDS, mg/L	91.3	119.0
BOD, mg/L	<2	<2
PO <sub>4</sub> , mg/L	0.08	0.03
NO <sub>2</sub> , mg/L	0.75	0.11
NH <sub>4</sub> , mg/L	3.40	2.10
E Coli, MPN/100ml	ND	ND
Total Coli, MPN/100ml	3	1

**Standalone STP, Gurugram**

**Pre-tadox®**

**5 h**

- COD: 176 mg/L
- BOD: 110 mg/L
- TKN: 8.11 mg/L
- NO<sub>2</sub>-N: 16.8 mg/L
- E Coli: 149 x10<sup>4</sup> MPN/100ml

**Post-tadox®**

**5 h**

- COD: 10 mg/L
- BOD: 3.4 mg/L
- TKN: 2.81 mg/L
- NO<sub>2</sub>-N: 5.0 mg/L
- E Coli: 23 MPN/100ml

**Gochi Drain, Faridabad**

**Pre-tadox®**

**5 h**

- TSS: 280 mg/L
- COD: 320 mg/L
- BOD: 64 mg/L
- PO<sub>4</sub>: 3.80 mg/L
- NH<sub>4</sub>-N: 2.33 mg/L
- Colour: 405.18 Hazen

**Post-tadox®**

**5 h**

- TSS: 156 mg/L
- COD: 160 mg/L
- BOD: 8 mg/L
- PO<sub>4</sub>: 0.20 mg/L
- NH<sub>4</sub>-N: 1.22 mg/L
- Colour: 68.17 Hazen

## Mixed Sewage Treatment

**Mixed Sewage**

5 h  
End to End

**TADOX® Treated**

S. No.	Parameters	Raw Water	Treated water	GRIHA*	GRIHA**	Matching criteria
1	pH	7.8	8.1	6.5-9.0	6.0-8.5	✓
2	TDS (mg/L)	757	628		2100(max)	✓
3	TSS (mg/L)	184	6	<20		✓
4	Electrical conductivity (micromhos/cm)	1541	1255		2250(max)	✓
5	Turbidity (NTU)	10.3	4			✓
6	BOD (mg/L)	45	6.2	<10		✓
7	COD (mg/L)	160	40	<50		✓
8	Chlorides (mg/L)	103.97	99.97		600(max)	✓
9	Sulphates (mg/L)	54.88	43.92		1000(max)	✓
10	Sodium Absorption Ratio	4.41	2.76		26(max)	✓
11	NH <sub>3</sub> -N (mg/L)	21.2	0.8	<5		✓
12	N-total (mg/L)	123.4	8.4	<10		✓
13	Boron (mg/L)	1.1	0.99		2(max)	✓
14	Fecal Coliform (MPN/100 ml)	3x 10 <sup>4</sup>	<10	<100		✓

\* GRIHA Standard for Sewage Treatment Plant (STP)  
\*\*CPCB Standard for irrigation water in GRIHA Manual V. 2019

**TADOX® Pilot at TERI Gurugram Campus treating mixed-sewage since Aug 2020. Treated water meeting norms for reuse in Land Irrigation (G.S.R 422 E), GRIHA Green Building Certification and Construction & Housing.**

**GRIHA Council**

This is to certify that the product of

“The Energy and Resources Institute”

TADOX® (TERI Advanced Oxidation Technology)

(under typology: STP (Grey and Black Water))

has been included in the GRIHA Product Catalogue under the following categories:

GRIHA V.2019 criterion: 14;  
&  
GRIHA V.2015 criterion: 14

The product can be used in GRIHA registered projects to meet the GRIHA norms, respectively. This is valid only for the product which has been mentioned above.

The certificate for the above-mentioned product is valid from

19<sup>th</sup> January, 2024 – 18<sup>th</sup> January, 2026

Sanjay Seth  
Vice President & Chief Executive Officer

Note:  
1. Before selecting the above specified products, it is recommended to evaluate that the project is meeting the GRIHA's mandatory compliance.  
2. This evaluation has been done based on the documentation - in the form of 3<sup>rd</sup> party test results and/or declarations - submitted by the manufacturer to GRIHA Council.  
3. The certified product(s) only qualify for the criterion mentioned in the certificate.  
GRIHA Council is a joint initiative of Ministry of New and Renewable Energy, Government of India and The Energy and Resources Institute (TERI) to implement GRIHA (Green Rating for Integrated Habitat Assessment), India's National Rating System for Sustainable Habitats.  
www.griha.org