



KERASIEV® Ceramic Membrane

Future filtration

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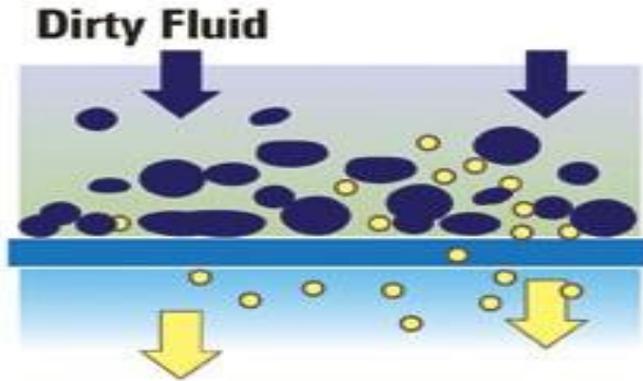
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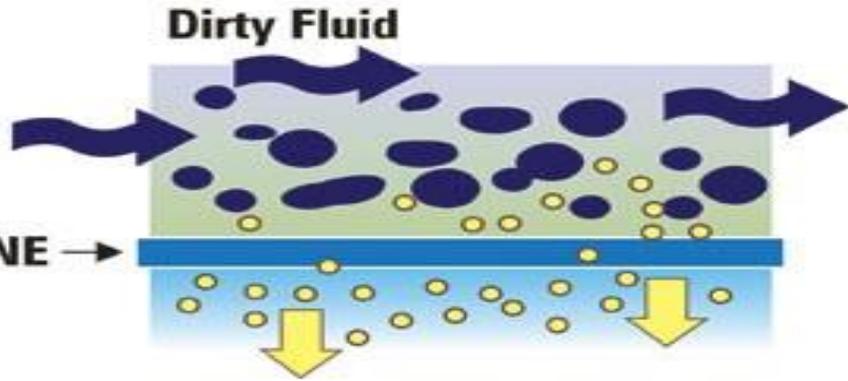
A physical filter is the most important tool in modern separation science.

- Liquid filter - 1st Generation Membrane
- Polymer filter - 2nd Generation Membrane
- Ceramic Filter - 3rd Generation Membrane (Energy intensive process: Expensive)
- **Economical Ceramic Filter** - 4th Generation Membrane (**KERASIEV® UF ceramic membrane**)

Process Technique Advantages

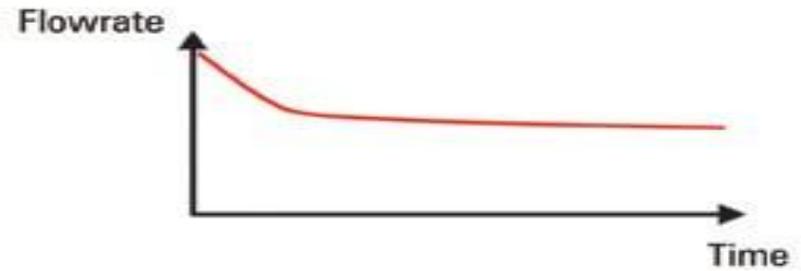
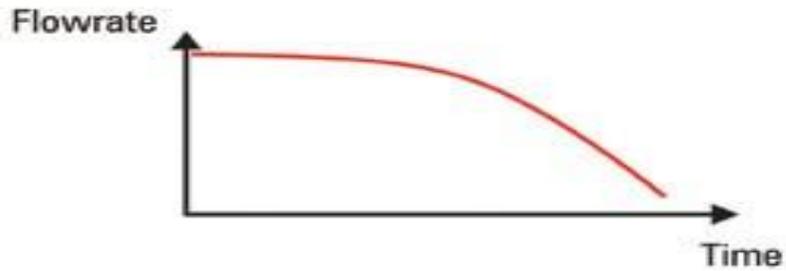


MEMBRANE



Clean, Filtered Fluid

Clean, Filtered Fluid



Dead End Filtration

Crossflow Filtration



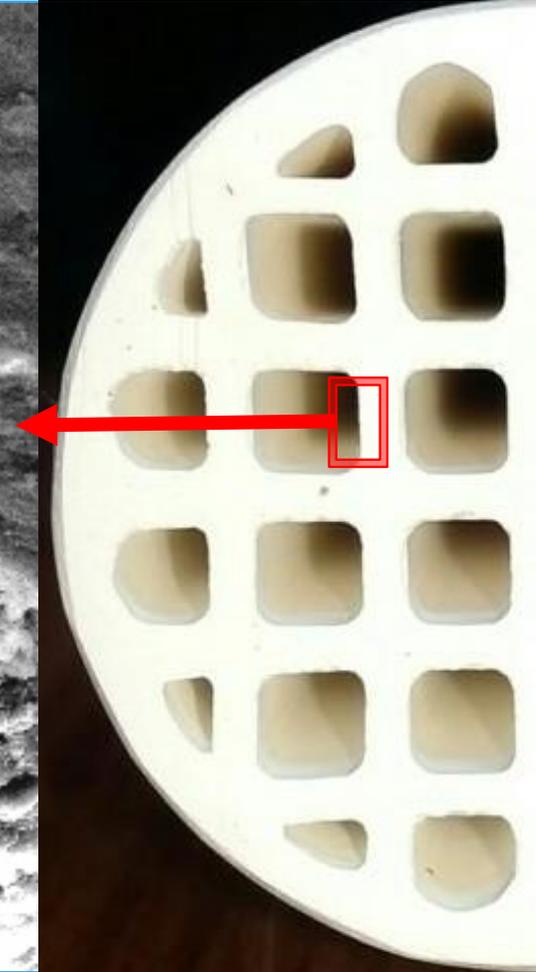
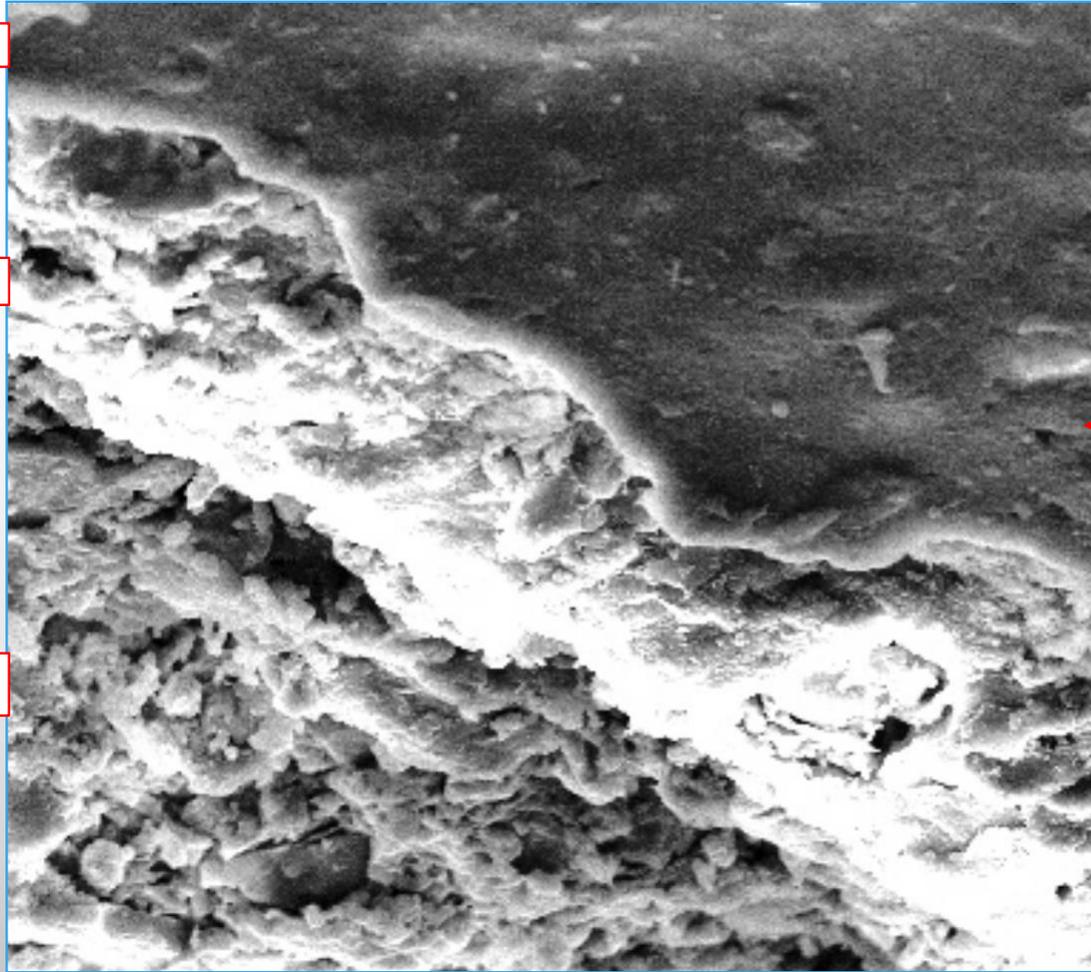
Structural morphology

Pore size

0.03 micron

0.3 micron

1 micron



Advantage of KERASIEV Ceramic Membrane: River/surface Water purification



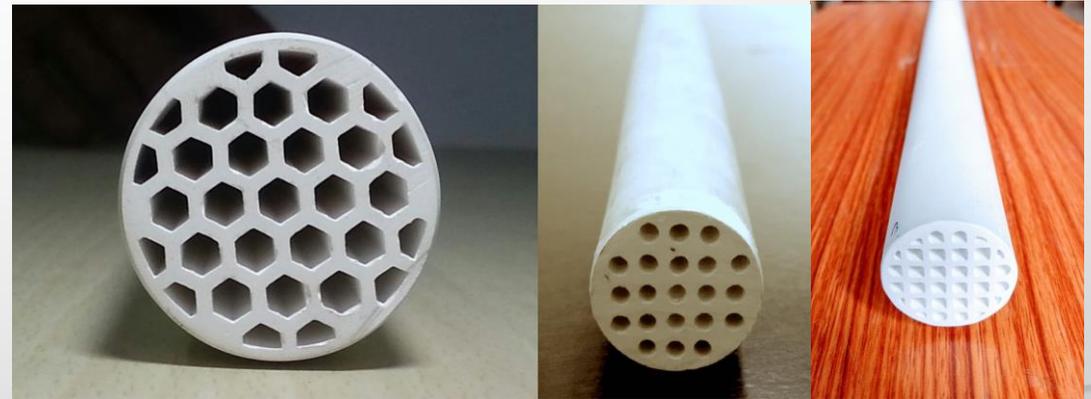
Conventional – Present

Raw water



Kerasiev

Raw water



Economics: KERASIEV® CM Vs UF Polymer (River water purification)



	Polymer membrane based filtration	Kerasiev Ceramic membrane based filtration
Plant Capacity	3.7m3/hr	3.7m3/hr
Initial capex		1.8
Membrane cost: UF Hydranautics (@2.5yrs/membrane life)		1.25
15 Yrs membrane replacement cost		6.25
15 years chemical cost		0.216
Power cost		1.404
labour cost		3.51
Capax+opex		14.43
Cost of water (Re/liter)	Rs 0.007	Rs 0.0037

Cost of ownership reduces to 1/2 to 1/3rd



Advantage of KERASIEV® UF ceramic membrane over polymer membrane

- Highly inert - Resistant to various bases and acids from 2 to 11pH
- Long self life - 15 years life
- High temperatures resistant - Can be steam sterilized upto 120°C
- Strong- High pressure withstanding capacity upto 10bar
- Low foot print- 2x2x3 (LxBxH) feet for 100m³ LPD water flux
- Low maintenance : 40% of conventional separation process

Plate Wiping solution from high security printing press- Recycling



शालबनी प्रेस :
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Phone No. : 91-3227-280212, 280213
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ISO 9001 : 2008
ISO 14001 : 2004
COMPANY

भारतीय रिज़र्व बैंक
नोटमुद्रण (प्रा.) लिमिटेड
(भारतीय रिज़र्व बैंक की संपूर्ण स्वामित्ववाली सार्वजनिक कंपनी)

**BHARATIYA RESERVE BANK
NOTE MUDRAN (P) LIMITED.**
(Wholly owned by Reserve Bank of India)



Date: 19th July, 2017

TO WHOMSOEVER IT MAY CONCERN

M/s Need Inovation, Uttar Ramchandrapur, Narendrapur, PO-Sonarpur; Dist: 24 Paraganas have supplied One unit of Ceramic Membrane Unit "KERASIEV TM 31H/32555304 module with 5 KERASIEV ceramic Membrane / Filter Assemblies", against our Purchase order No: 16000416 dated 29-Jan-2017.

This unit has been put in our WSTP section for Pre-Filtration of Used Wiping Solution. The performance of the unit is satisfactory.

This is issued on their specific request vide letter dated 25/05/2017.

(Saikat Datta)
Asst. General Manager

Registered & Corporate Office : No. 3 & 4, 1st Stage, 1st Phase, B.T.M. Layout, Bannerghatta Road,
P.O. Box No. 2924, Bangalore 560 029 Phone : 91 80 22452300 / 66602000 Fax : 91 8066602039
website : www.brbnmpl.co.in, e-mail : cobangalore@brbnmpl.co.in

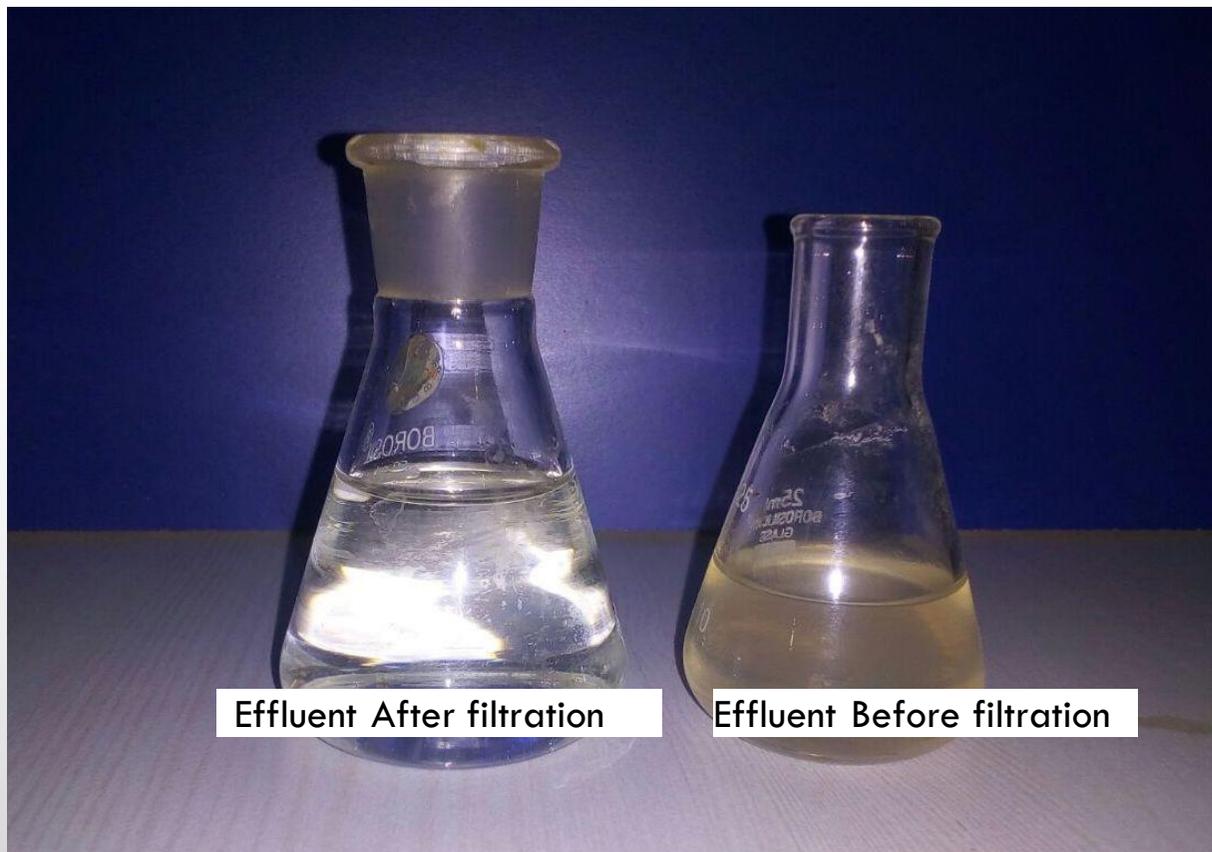
Client: Reserve Bank of India (RBI), Bharatiya Reserve Bank Note Mudran Limited (BRBNM), WB

Gold particle filtration from effluent

Estimated Upto 12gm of gold saved/filtered per day



Actual pilot plant in operation since Jan 2018



Effluent After filtration

Effluent Before filtration

Client: EMERALD JEWEL INDUSTRY INDIA LIMITED, TN

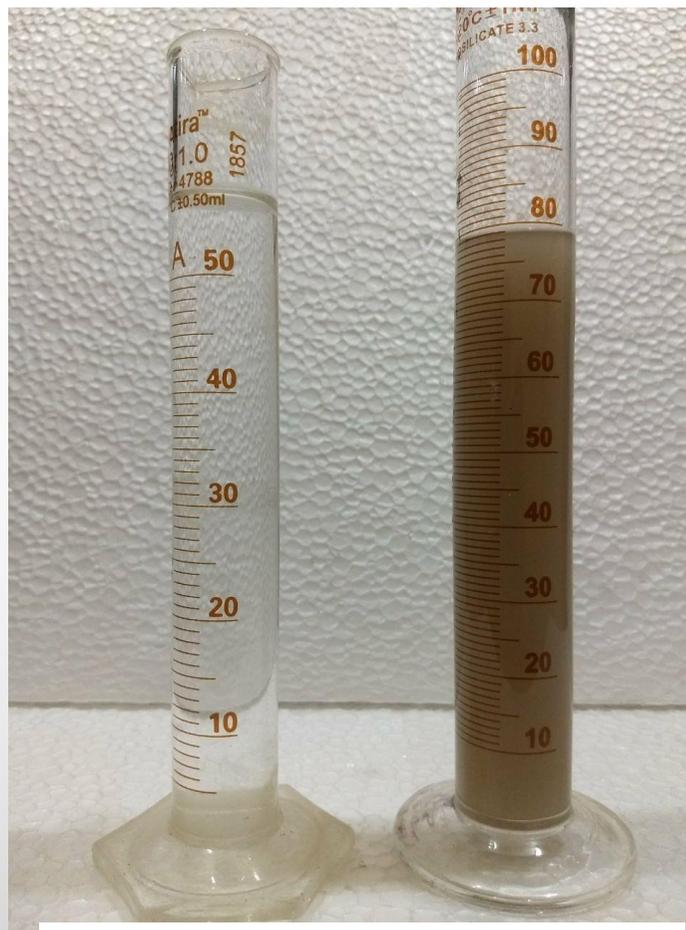
Distillery : Ethanol extraction



Client: **Praj, Pune**

KERASIEV® Ceramic Membrane (UF) application: Brine Filtration for RO pre-filter

Membrane pore size: 300nm
Permeate flux: 130l/hr/m² Result
TSS: Less than 0.5mg/l



After filtration Before filtration

Client: Durgapur Chemical Limited, Govt. of WB

KERASIEV® Ceramic Membrane (UF) application: Textile effluent

Membrane pore size: 300nm
Permeate flux : 150l/hr/m²



After filtration

Before filtration

Client: Konark fixtures ltd, Mumbai

KERASIEV® Ceramic Membrane (UF) application: Chemical extraction in Carbon Black for paint/ink industry

Membrane pore size: 300nm

Permeate flux : 70l/hr/m²



Before filtration

After filtration

Client: Synergy Carbide, Ahamedabad

KERASIEV® Ceramic Membrane (UF) application: Cell separation and concentration

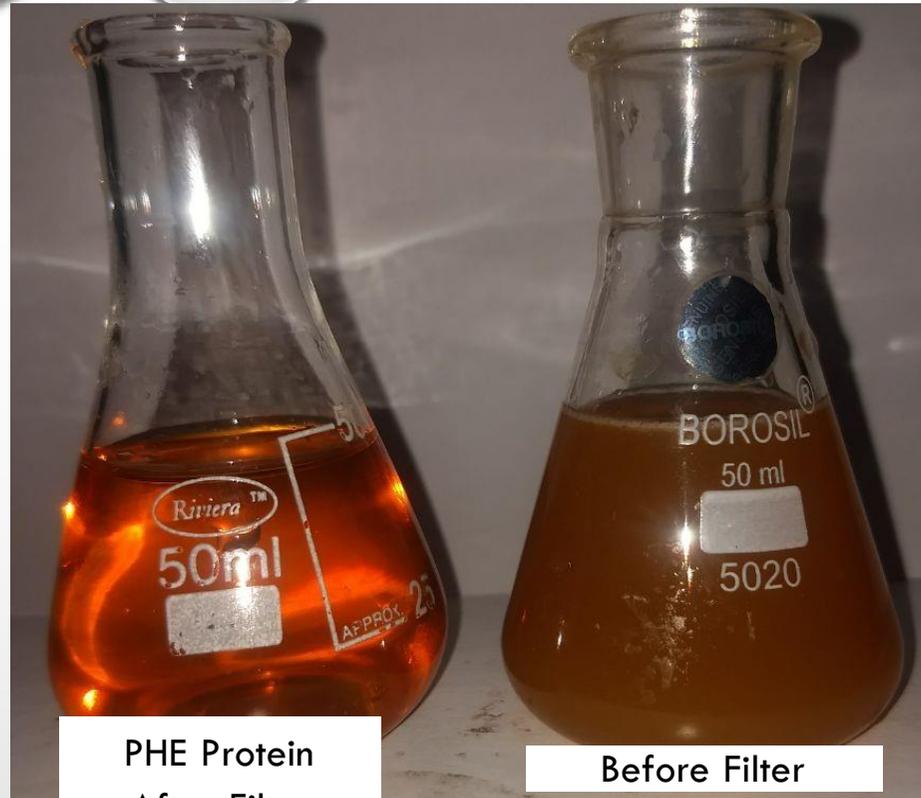


Membrane pore size: 30nm
Permeate flux : 66l/hr/m²



Client: Agri Life, Sangareddy Dist (Hyderabad)

Protein hydrolyses filtration



PHE Protein
After Filter

Before Filter

Client: **Infinite Bio, TN**

Sugar cane filtration



Client: Daurala Sugar factory, Meerut & Chemical systems Technologies, Delhi

Milk concentration (Dairy)



Concentration upto 40%

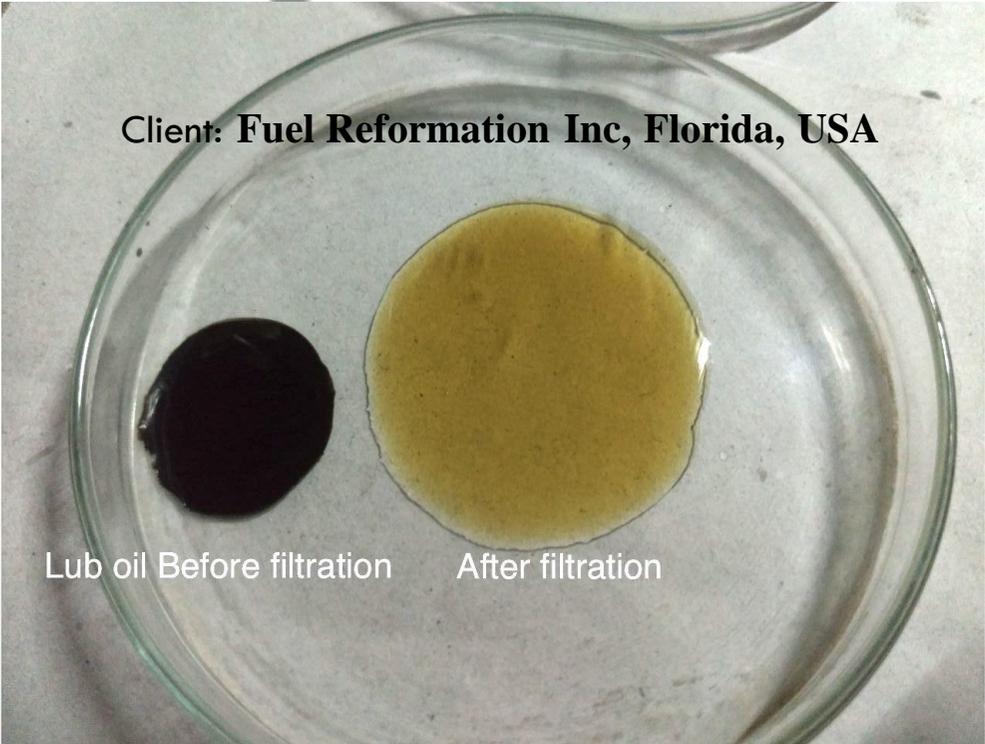


Before filtration

After filtration

Client: **National Dairy Research Institute, Chandigarh**

Lubricating oil filtration and recycle



KERASIEV® Ceramic Membrane, Some Important clients:

QUALICOM Solutions Pvt Ltd, Kolkata
Eesavyasa Technologies Pvt Ltd, Hyderabad
Rhino Machines Pvt Ltd, Gujrat
EMERALD JEWEL INDUSTRY INDIA LIMITED, TN
BARC, Mumbai
Aquablu Lanka (Pvt) Ltd, Sri lanka
Praj Matrix, Pune
Summits Hygronics Private Limited, TN
Yamini Services (Wyuna Separation Technology Pty Ltd), Australia
SAROJ TINY TECH, Gujrat
H2O Scientific
Membarne System Specialists India Private Limited, Mumbai
INFINITE BIOSCIENCE, Vellore
Jeevan R Boiler care systems, TN
konark fixtures ltd, Mumbai
Riya Impex Private limited, TN
JM TECHNOLOGIES, TN
AQUA PIOUS
Amrit water technologies
KOMAL INDUSTRIES, Mumbai
Akola Chemicals India Ltd, Mumbai
S K ASSOCT
MEGHANA ENTERPRISE
CentPro Engineering Private Limited, Pune
Aquaplus water purifiers p ltd
YASH FILTERS, Gujrat
Veda Chem Private Limited
Synergy Carbide, Gujrat



Recognition



**1st Prize in Industry-Academia conclave March, 2017 (Govt. of WB)
For Development of KERASIEV® Ceramic Membrane for water treatment**

Recognition

**Company's KERASIEV[®] Ceramic Membrane
technology
has been recognized and recommended by
Department of Science & Technology, Govt.
of India for Scaleup.
Financial Partner: SIDBI**





One of the 10 startups of 2017 by GCIP, UNIDO (UNITED NATION INDUSTRIAL DEVELOPMENT ORGANIZATION) CleanTech Open Tech, Global, USA & MSME, Govt. of India



Together.... Stronger !!!