

a green technology Initiative

# Liquid Coolant Recovery System



*presented by*

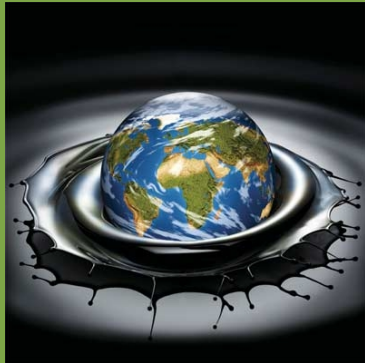
**Aravind A Narayan**

**Pure Tech India**

uniqueness defined

# Water Soluble Emulsion Coolant Recovery/ Metal working fluid Recovery

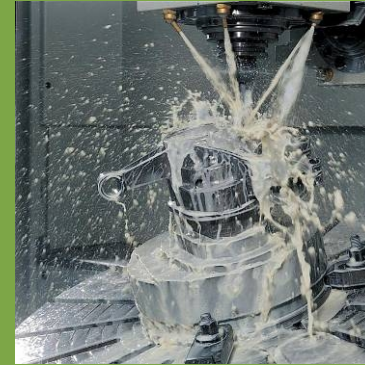
- InstaPure



Coolant oil



water



Emulsion coolant



Coolants is treated;  
sent for reuse

Coolants gets contaminated;  
sent for treatment



## Introduction:

Coolant characteristics

Coolant disposal.

Coolant reuse

## ***Coolant Contaminants and source:***

### Tramp Oil:

Source: Hydraulic line leakages, Guide Way lube,

Lube points over flow, Tool Magazine, Chuck

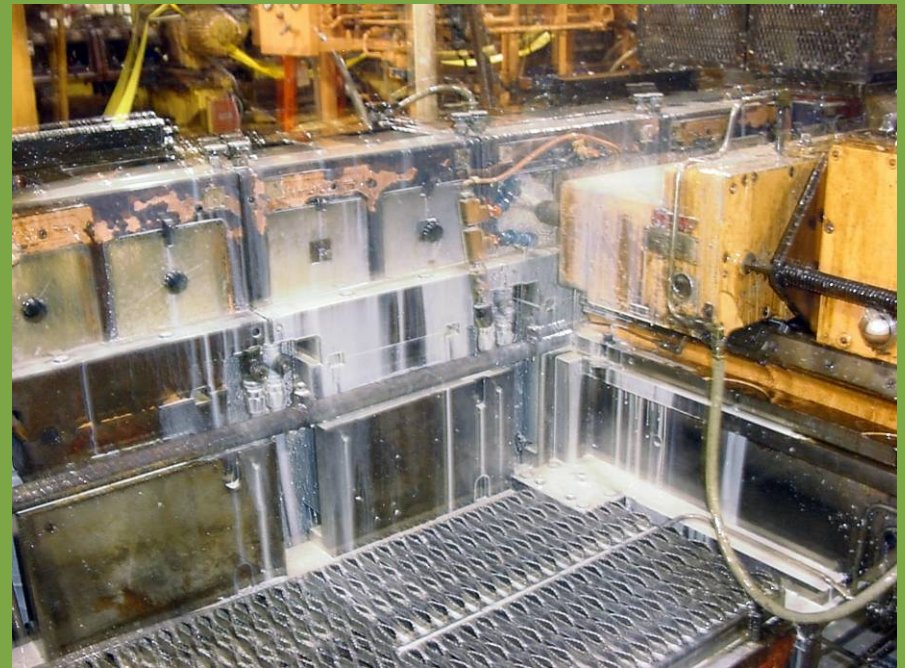
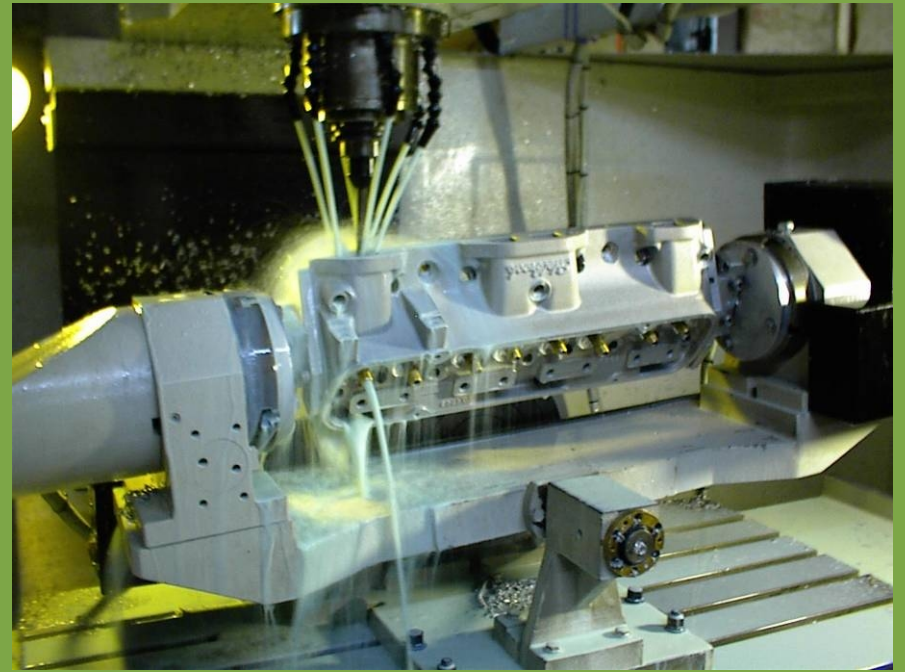
lube overflows, Workpiece coating oil overflow.

### Machined dust:

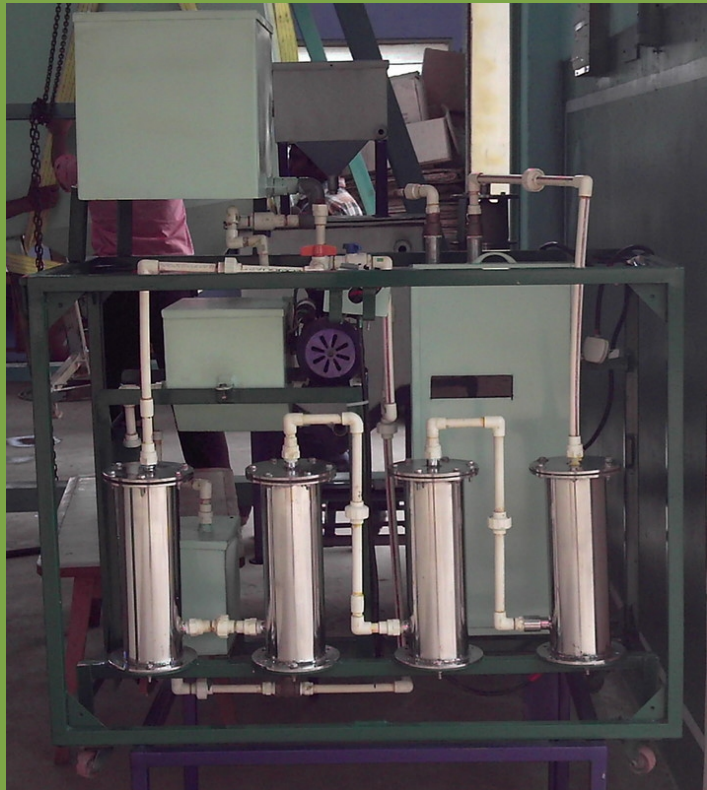
Source: Machining. Tool wear, atmospheric dust

### Bacteria:

Source: Water, Oil induced Anaerobic bacteria



# Coolant recovery general process:



*Working model of a Coolant Recovery System*

Coolant for recovery

↓  
Oil removal

↓  
Machined dust removal

↓  
Bacterial Disinfection

↓  
Coolant for reuse

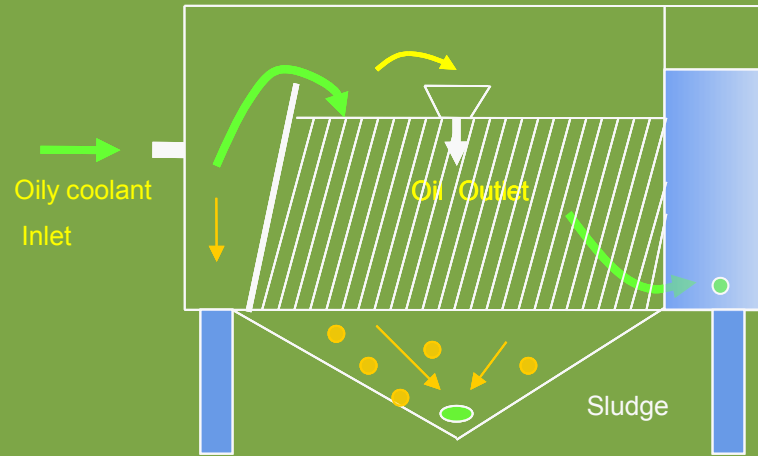
Component in Equipment

→ Desorber, Tramp Oil remover, Activated Carbon filter

→ SS Bag filter with SS filter media (InstaTrap filters)

→ UV Bacterial Disinfection Unit (Bactdisinfect unit)

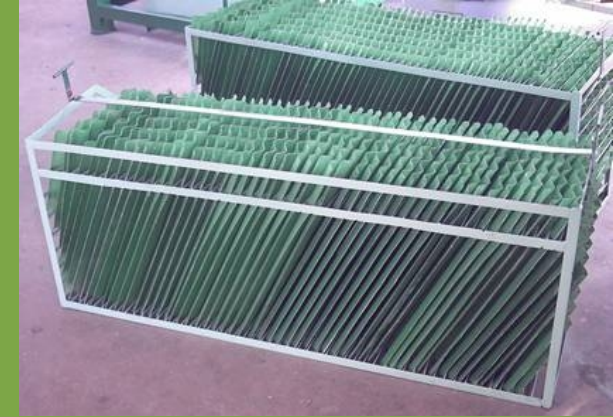
# Oil removal:



Desorber – Flow Illustration



Desorber – Top View



Desorber – CPI Pack



Tramp Oil Remover Membrane

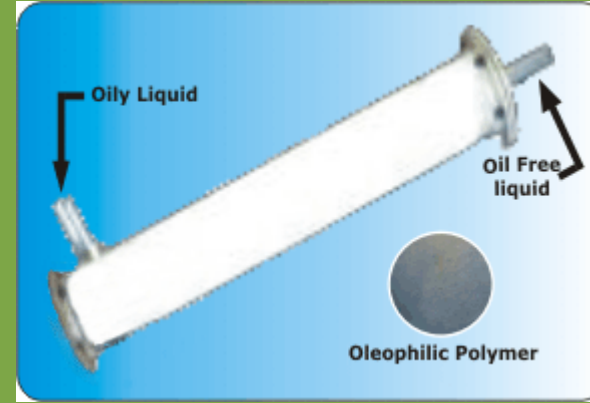


Desorber – Carbon Pre filter  
Activated Carbon Chamber

# Suspended Solids Removal:



Desorber – Heavy Solids



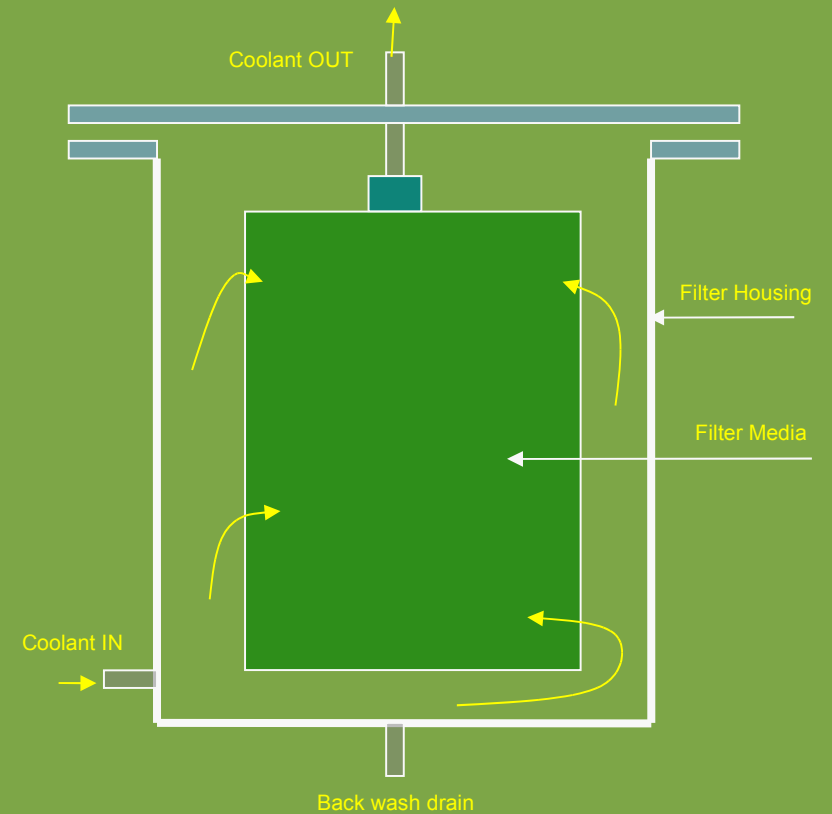
Tramp Oil Remover – Solids above 40 microns



SS Filter cartridge  
Filtration upto 1 micron



SS Filter cartridge – Housing



SS Filter cartridge flow illustration

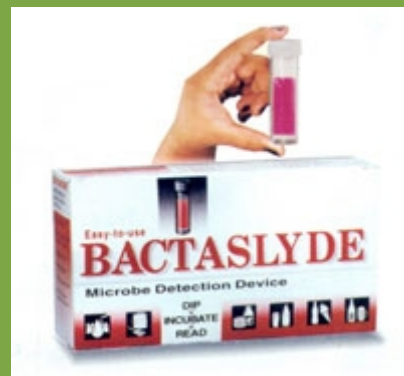
# Bacterial Disinfection (Bactdisinfect):

U-V Disinfection unit:

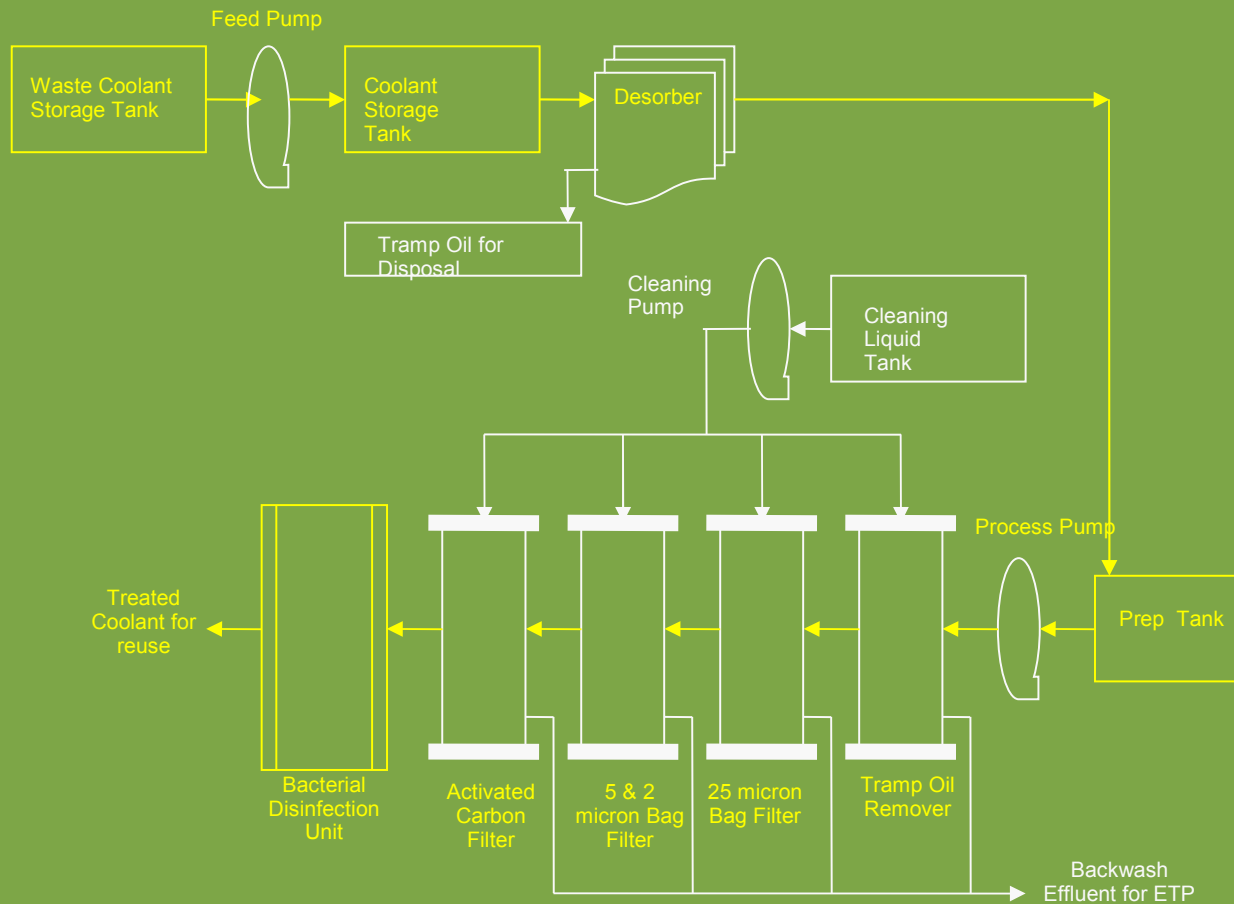
Coolant passed as thin film in front of UV light



## On Site Bacteria Analysis:



# Schematic Flowchart of Treatment Process:



## Contaminant diagnostic tools:

- Tramp Oil* : Visual, Lab and On-site Oil in water alarms
- Suspended Solids* : Millipore Test and Lab
- Bacteria* : Lab and On site by Bactaslydes
- pH* : Glass electrode pH meters
- TDS* : Electrode meters

## Benefits:

### Environment:

Pollution prevention by containing hazardous discharges into environment.

### Natural Resources:

Hydrocarbons and water – depletable resources conservation.

### ISO 14000:

Helps in complying with ISO norms for Liquid coolant disposal

### Economic advantages to the company:

Waste coolant converted to usable coolant – reduction in new purchases.

Quality of work piece and tool life

Productivity loss due to coolant change minimised

Manpower loss due to coolant handling losses minimised.

Effluent Treatment costs reduced with major savings in electricity consumption

### Specific product advantages:

Systems are modular and can be augmented for increased capacities.

Coolant can be treated and reused.

Mobile units

# Our Customers:

- M/s L & T Komatsu Ltd, Bangalore
- M/s Tyco Sanmar Ltd, Viralimalai, Trichy
- M/s Bharat Heavy Electricals Limited, Haridwar
- M/s Hindustan Aeronautics Limited, Aircraft Division, Bangalore
- M/s Rane Madras Limited, Varnavasi, Kancheepuram district.
- M/s Wipro Infrastructure Engineering Limited, Sriperumbudur.
- M/s Wipro Infrastructure Engineering Limited, Bangalore
- M/s Compatible Solutions LLP, Singapore
- M/s Dynamics Technologies Limited, Bangalore
- M/s Steer Engineering Private Limited, Bangalore
- M/s Rane TRW Steering Systems Ltd, Viralimalai
- M/s Unitech Engineering Pvt Ltd, Rajkot
- M/s CRI Pumps Pvt Ltd, Coimbatore

# Our Customers for Desorber and Bag filters:

- M/s Indian Oil Corporation limited, Jaipur through M/s JPL Ltd, Ahmedabad
- M/s Bharat Heavy Electricals Limited, Hyderabad for their overseas projects in Iraq and Bangladesh through m/s Doshion Ltd, Ahmedabad.
- M/s Bharat Heavy Electricals Limited, Haridwar
- M/s Sandvik Asia Limited, Ahmedabad
- M/s Uniparts Ltd, Vishakapatnam
- M/s Cashman Investment Ltd, Nigeria
- M/s Caparo Engineering Pvt Ltd through M/s Electrocoat Surface Coatings Ltd, Pune
- M/s Fabco LLC, Dubai
- M/s HBL power systems limited, Vizianagaram.
- M/s Dart Manufacturing Ltd, Hyderabad (Tupperware).
- M/s Spicer India Limited, Satara
- M/s Compatible Solutions LLP, Singapore
- M/s Asia Motor works Ltd, Bhuj
- M/s Shell India Marketing Ltd, Chennai (Fuel Pump station)
- M/s United Water Technologies Pte Ltd, Singapore
- M/s Winergy Ltd, Sriperumbudur (Siemens) through Water Tech, Chennai
- M/s Bimetal Bearings Ltd, Coimbatore

Thank You

**Pure Tech India**  
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