

Municipal Solid-waste Management System (MSMS)

MSMS

***(A Scientific Way Of disposal of
Solid Wastes in 24 Hours)***

***Attention: Municipal / Corporations
Authorities***

Earn Money Instead Of Spending

***Presented By
Mak India Limited***

50+
YEARS
OF
SUCCESS
Since 1973

MAK MSMS
(A Scientific Way Of Handling Solid Wastes)

Compliance To Norms Of,

- ✓ ***Waste to Wealth (Organic Manure in 24 Hours and Biochar for Farming)***
- ✓ ***Waste to Zero Waste***
- ✓ ***Waste to Energy (Electricity)***

The waste can be disposed of within 24 hours of waste generation.

If this is exciting to you, proceed to the next page

50+
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OF
SUCCESS
Since 1973

MAK MSMS

(A Scientific Way Of Handling Solid Wastes)

- ✓ *No Landfill / No Dump Yard*
- ✓ *No Fouling Smell anywhere in the City / Town*
- ✓ *No Air Pollution*
- ✓ *No Leachate Water / Groundwater Pollution*
- ✓ *No Health Hazards / No Virus like COVID-19, Chicken Guinea, Dengue, Etc.*
- ✓ *Cost of Waste Disposal: NIL*
- ✓ *Healthcare Cost reduced to < 20% (save several thousand crores of Rupees per year)*

50+
YEARS
OF
SUCCESS
Since 1973



Features Of The Technology

- *Patented – World first*
- First of its kind technology to get CTO from CPCB / TNPCB with 6+ years of field experience meeting all compliances
- Burns at 1000+ Deg C without fuel to eliminate dioxin and other deadly gases
- Harvesting heat energy for,
 1. *Inducting Kiln temperature sustenance @ 1000 + Deg C*
 2. *Power generation (Self powered + feeding to Grid)*
 3. *Biochar production*
 4. *Biodegradable waste drying for making manure in pellet form in 24 Hours*
 5. *Mixed solid waste drying for ease of segregation – Stops fouling smell*
 6. *Community water heating (for Cold places)*

Cavinkare MMA Chinnikrishnan Innovation Awards 2020

MAK DRDO ABD
Anaerobic Bacteria Digestion Septic Tank

MAK
India Limited

NATIONAL AWARD WINNER
PRESENTED BY
HON. SANJAY KIRLOSKAR
CHAIRMAN OF KIRLOSKAR GROUP

**“ INNOVATION
IN WASTE
MANAGEMENT ”**

We Have Solution For Every Pollution

Manickam Athappa Kounder (MAK)
Chairman of MAK GROUP



सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 Of The Patents Rules)

क्रमांक : 044138912
SL No :



पेटेंट सं. / Patent No. : 390404
आवेदन सं. / Application No. : 201841002296
फाइल करने की तारीख / Date of Filing : 19/01/2018
पेटेंटी / Patentee : 1.Mr.Manickam Athappa Gounder 2.Dr. Raman Sivakumar

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित A SYSTEM FOR SOLID WASTE DISPOSAL नामक आविष्कार के लिए, पेटेंट अधिनियम, १९७० के उपबंधों के अनुसार आज तारीख 19th day of January 2018 से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled A SYSTEM FOR SOLID WASTE DISPOSAL as disclosed in the above mentioned application for the term of 20 years from the 19th day of January 2018 in accordance with the provisions of the Patents Act, 1970.



अनुदान की तारीख : 25/02/2022
Date of Grant :

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, 19th day of January 2020 को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 19th day of January 2020 and on the same day in every year thereafter.

Generally used Solid Waste Management methods all over the world and solutions from MAK is tabulated below:

#	Type of waste	Disposal method	Issues	A Hybrid One Stop Solutions from MAK:
1	Medical waste	Use external energy and Burnt using incineration	Operating at lower temperature and does not meet safe burning temperature of 1000 plus Deg C that fail to meet gas emission standards, resulting/ in toxic emissions, it also need external energy for burning and Creates Big health hazard.	<p>Receive all types of waste within 24 Hours (as per collection and disposal rule) of its generation and eliminate within next 24 hours.</p> <p>a) Self-burning. No need for external energy.</p> <p>b) BDW is dried and made into granular organic waste. NBR and NR waste is burned scientifically.</p> <p>c) Mixed waste is dried and segregated at ease.</p> <p>d) Our technology utilizes a high-temperature incineration unit (over 1000°C) to efficiently and safely dispose of medical and sanitary waste.</p> <p>e) No dump yard.</p> <p>f) No fouling smell.</p> <p>g) No leachate water.</p> <p>h) No health hazard.</p> <p>i) Save precious land resources and create social forestry.</p>
2	Sanitary waste - Diapers and Napkins	Dump yard		
3	Biodegradable waste (BDW)	Dump yard	Creates fouling smell and a big health hazard and generates leachate water.	
4	Non-Biodegradable waste (NBD)	Dump yard	Filled at dump yard and creates a huge hill generating fouling smell leading to huge health hazard.	
5	Mixed waste (BDW+NBD+ (Non-Recyclable) NR)	Dump yard	Practical difficulty of segregating is all over the world. Creates fouling smell and is a huge health hazard.	



**Rules To Be Implemented
All over the World
To Stop Further Pollution
To Our Mother Earth
And Restore
To Her Original State**

Rule Concept

1. Your Waste, Your Responsibility

2. Polluter Pays

(This will ensure the waste generator to minimize or dispose the waste themselves. For e.g., Restaurants will sell the food waste to pig farms or biogas generators or poultry / cattle feed producers using technology)

Classification of Solid Waste

1. Biodegradable Waste

- a. Bulk waste generators ($>10\text{kg}$ per day) like restaurants, apartment complex, marriage halls, industrial canteens, vegetable markets, etc.
- b. Petty waste generators ($<10\text{kg}$ per day) like roadside restaurants, street vendors, etc.

2. Non-Biodegradable Waste

- a. Bulk waste generators ($>10\text{kg}$ per day) like industries, hospitals, institutions, hostels, etc.
- b. Petty waste generators ($<10\text{kg}$ per day) like street vendors, small retail stores, etc.

Classification of Solid Waste

3. Waste from Individual Homes: Segregated / Combined Solid Waste

4. Medical Waste

- a. Bulk waste generators ($>10\text{kg}$ per day) like hospitals, nursing homes, etc.
- b. Petty waste generators ($<10\text{kg}$ per day) like clinics, medical laboratories, blood banks, etc.

5. Sanitary Waste (Napkins & Diapers)

- a. Bulk waste generators ($>10\text{kg}$ per day) like hospitals, hostels, etc.
- b. Petty waste generators ($<10\text{kg}$ per day) like homes, shops, industries, etc.

Classification of Solid Waste

6. E-Waste:

Waste generators like IT companies, Service centers, government organizations, educational institutions, industries, homes, etc.

7. Construction and demolition (C&D) Waste:

Construction industries and realtors.

Waste Handover / Collection Methods

1. Biodegradable Waste

- a. Bulk waste generators: Segregate the waste and store it in designated bins (colored) and handover to MSMS site or to the approved collection agent** on a daily basis.
- b. Petty waste generators: Segregate the waste and store it in designated bins and will be collected by Approved collection agent** on daily basis.
- c. Caution: Do not mix any other waste. If found, heavy penalty will be levied.

2. Non-Biodegradable Waste

- a. Bulk waste generators: Segregate the waste and store it in designated bins and handover to MSMS center or call Approved collection agent** as and when the bins are full.
- b. Petty waste generators: Segregate the waste and store it in designated bins and call Approved collection agent** as and when the bins are full.
- c. Caution: Do not mix any other waste. If found, heavy penalty will be levied.

***Approved collection agent could be appointed by Municipal authority or Municipal authority could entrust with the Joint venture Company*

Waste Handover / Collection Methods

3. Waste from Homes: Segregated / Combined Solid Waste kept in bins will be collected by the authorized collection agent on a daily basis and delivery to the MSMS center.

4. Medical Waste

- a. Bulk waste generators: Segregate the waste and store it in coded pouches and handover to MSMS site on a daily basis or to the authorized collection agent.
- b. Petty waste generators: Segregate the waste and store it in coded pouches and call designated contractor as and when the bins are full.
- c. Caution: Strictly follow the codes allotted for each type of waste. Do not mix any other waste. If found, heavy penalty will be levied.

Waste Handover / Collection Methods

5. Sanitary Waste

- a. Bulk waste generators: Segregate the waste and store it in coded pouches and handover to MSMS site on a daily basis or to the authorized collection agent.
- b. Petty waste generators: Segregate the waste and store it in coded pouches and call designated contractor as and when the bins are full.
- c. Caution: Do not mix any other waste. If found, heavy penalty will be levied.

6. E Waste:

- a. Segregate the waste and store it in closed boxes and call licensed e-waste recycling agency as and when the bins are full

7. Construction and demolition (C&D) Waste

- a. Handover the C&D waste by calling licensed C&D waste recycling vendors as and when wastes are generated.

Tariffs for Waste Management Services

1. Biodegradable Waste

- Rs 10/- per kg if >10kg per day
- Rs 50/- per day, a flat fee if <10kg per day

2. Non-Biodegradable Waste

- Rs 10/- per kg. Must deliver 100 Kg minimum.

3. Waste from Home Segregated / Combined Solid waste

- Nil

4. Medical Waste

- Rs 25/- per kg

5. Sanitary Waste

- Rs 25/- per Kg or minimum Rs 1000/- per month whichever is higher

6. E Waste

- As prescribed by licensed e-waste recycling agency

7. Construction and Demolition Waste

- As prescribed by licensed C&D waste recycling vendors



**MAK KILN-1000 Plant @ Kodungaiyur – Greater Chennai Corporation, Since 2019
(50 TPD Capacity)**

**Our 5-in-1
solution offers a
holistic approach
to waste
management,
integrating**



In built Segregation Unit



Organic Manure Manufacturing Unit



Incineration Unit – Waste To Energy



Energy Harvesting Unit



Value Added Production Unit

KILN 1000 Plant @ Dr.GRD College of Arts and Science, Coimbatore (5 TPD Capacity)



Our Heat Harvesting Applications



KILN Heating



Power Generation



Biochar Production



Community Water Heating



Biodegradable Waste Drying



Mixed Solid Waste Drying

Vapor Outlet (Clean and Green)



Water Recycling Unit



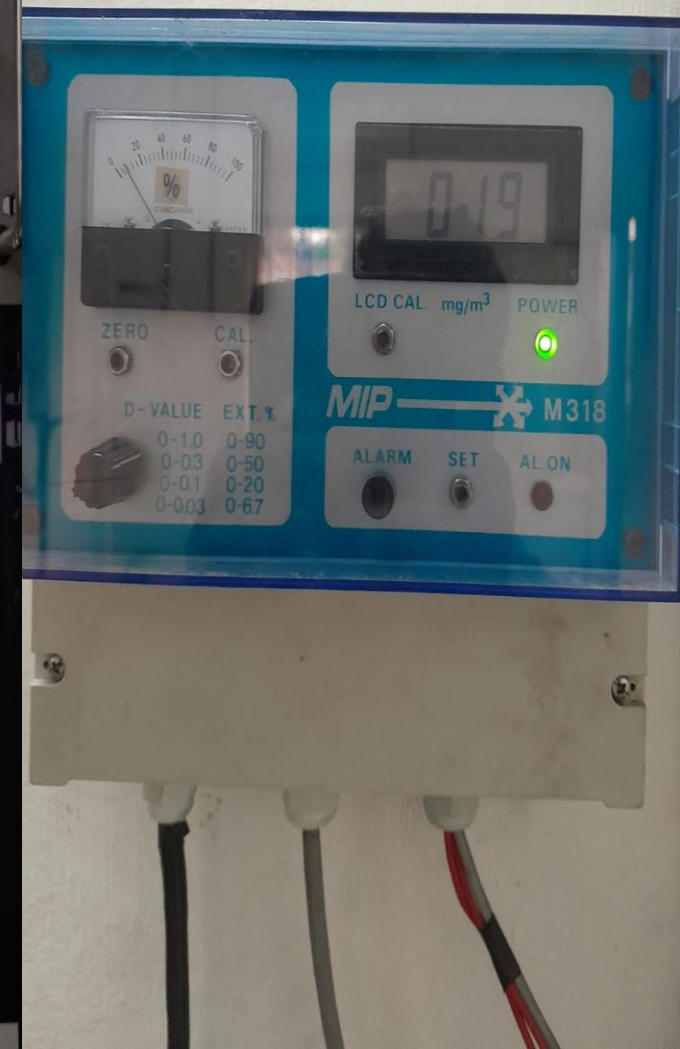
Online Monitoring System



Gas Analyzer



Dust Analyzer



Our Product Endorsements

GREATER CHENNAI CORPORATION

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s. MAK Controls & Systems Private Limited, the parent company of MAK Group, Coimbatore, Tamil Nadu has executed the work of Design, Engineering, Supply, Erection, Installation, Construction, Testing and Commissioning of 10 MT per day capacity Scientific Incinerator for Solid Waste Management Decentralized Processing unit for Non-recyclable Dry Waste (i.e. Solid Waste Processing and Treatment Plant).

This plant is successfully completed in October 2019 and now it is under operation and maintenance since completion till today. The operations and maintenance are managed by MAK INDIA LIMITED, a wholly owned subsidiary of MAK Controls & System Private Limited.

Note: This certificate is issued on request of M/s. MAK Controls & Systems Private Limited for their qualifications and tendering purpose for their future projects.

Date: 28th June 2021.

T. V. [Signature]
Sign & Stamp. 28/6/2021

EXECUTIVE ENGINEER
SOLID WASTE MANAGEMENT DEPARTMENT
GREATER CHENNAI CORPORATION

ERODE CITY MUNICIPAL CORPORATION

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

"An Incinerator Designed and Developed by Mak Controls & Systems Private Limited, the parent company of MAK Group, Coimbatore was Installed at Erode with 10 MT per day capacity to incinerate Dry Municipal Solid waste and successfully replaced with 50 MT per Day capacity. The incinerator is functioning successfully with Dry MSW since last six months and continuing. The Dry waste being supplied by Erode Municipal Corporation. The operations are managed by MAK INDIA LIMITED, a wholly owned subsidiary of Mak Controls & Systems Pvt.Ltd.,"

Place : ERODE
Date : 14.06.2019



[Signature]
COMMISSIONER

ERODE CITY MUNICIPAL CORPORATION

[Signature]
12/06/19

Our Product Endorsements

ANNA UNIVERSITY, CHENNAI
Anna University (CEG Campus)
Chennai -600025

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s. MAK Controls & Systems Private Limited, the parent company of MAK Group, Coimbatore, Tamil Nadu has executed the work of Design, Engineering, Supply, Erection, Installation, Construction, Testing and Commissioning of 10 MT per day capacity Incinerator (i.e. Solid Waste Processing and Treatment Plant) for Dry Municipal Solid Waste at Erode City Municipal Corporation, Tamil Nadu and also it was successfully replaced (enhanced) with 50 MT per day capacity Incinerator (i.e. Solid Waste Processing and Treatment Plant) for Dry Municipal Solid Waste.

This plant is functioning successfully with Dry Municipal Solid Waste since January 2019 till date and continuing. The dry waste is being supplied by the Erode City Municipal Corporation. The operations and maintenance are managed by MAK INDIA LIMITED, a wholly owned subsidiary of MAK Controls & System Private Limited.

Note: This certificate is issued on request of M/s. MAK Controls & Systems Private Limited for their qualifications and tendering purpose for their future projects.

Place: Erode, Tamil Nadu.

Date: 30th May 2020.



S. Giridaran,

M.E.Environmental Engineering/Research Scholar



Centre for Public Policy Research

Independent | In-depth | Insightful

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

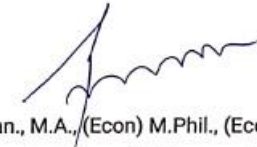
This is to certify that M/s. MAK Controls & Systems Private Limited, the parent company of MAK Group, Coimbatore, Tamil Nadu has executed the work of Design, Engineering, Supply, Erection, Installation, Construction, Testing and Commissioning of 10 MT per day capacity Incinerator (i.e. Solid Waste Processing and Treatment Plant) for Dry Municipal Solid Waste at Erode City Municipal Corporation, Tamil Nadu and also it was successfully replaced (enhanced) with 50 MT per day capacity Incinerator (i.e. Solid Waste Processing and Treatment Plant) for Dry Municipal Solid Waste.

This plant is functioning successfully with Dry Municipal Solid Waste since January 2019 till date and continuing. The dry waste is being supplied by the Erode City Municipal Corporation. The operations and maintenance are managed by MAK INDIA LIMITED, a wholly owned subsidiary of MAK Controls & System Private Limited.

Note: This certificate is issued on request of M/s. MAK Controls & Systems Private Limited for their qualifications and tendering purpose for their future projects.

Place: Erode, Tamil Nadu.

Date: 20th July 2020.



B. Chandrasekaran., M.A., (Econ) M.Phil., (Econ)

Environmental Economist &

Former Consultant at Union Planning Commission, Government of India,

Honourary Research Fellow at

Centre for Public Policy Research (CPR), Kochi, Kerala

Centre for Public Policy Research

'Mandoli House,' First Floor, New Link Road, Elamkulam, Kochi, Kerala- 682 020
Ph: 91 484 4043895 | M: 91 97457 09174 | www.cpr.in | cpr@cpr.in

Waste to Wealth / Zero waste in 24 Hrs using MAK Patented Technology

**We strive Hard to help Municipal administration to dispose of MSW within
24 Hours of receipt of MSW at the proposed plant.**

We have been operating the plant since 2019 under PPP mode. This plant uses patented technology. We have been doing R&D work to improve the efficiency of the plant. We also improved the design and made it modular so that these units could be easily,

- **Manufactured**
- **Transported**
- **Installed**
- **Maintained**
- **Supported for Spares and AMC**
- **Adopted to integrate with Power generation harnessing the excess heat.**

**Corporation
Scope Under
PPP Mode:**

- 1. Land**
- 2. Building**
- 3. Power**
- 4. Water**

Additional Features

Modular KILN 1000+

Quantity of MSW handled per day per unit: 75 TPD

ORC of 1 MW per 30 TPD +/- 5 TPD of KILN 1000 plant per unit.

Project duration: 6 to 9 Months from the date of receipt of in principle clearance.

Entire State MSW can be handled and made in to Zero waste / wealth / energy in less than 24 Hrs of receipt at the plant.

We have Solution for Every Pollution

Thank You!

For the patience in going through this presentation.

“Jointly Let Us Restore Our Mother Earth To Its Original State”



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www.makindialimited.com



info@makindia.co.in



**50+ Years
of Success
in
Military
and
Aerospace
Serving
Over 56+
Countries
Worldwide
with Plant
in
USA**