



Nagar Palika Parishad Gonda



Case Study on Drum Composting

Municipal Wet Waste+Dried Sludge

Presented by

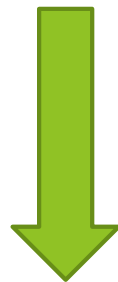
Sandeep Kumar Tiwari

SFI

Presently Working at NPP Baghpat (U.P)



Drum Composting



Municipal Wet Waste+Dried Sludge

Date of Filling- 18.01.2025 (Municipal wet waste+Dried sludge)

Ratio-9:1 (Municipal wet waste:Dried sludge)

Composting Duration- 45 Days (Date- 18.01.2025 to 04.03.2025)

Date of Filling- 18.01.2025 (Municipal wet waste+Dried sludge)



Date of Filling- 18.01.2025 (Municipal wet waste+Dried sludge)



Generated Compost





ITL LABS PVT. LTD.

Govt. Approved Test House

B-283-284, Mangolpuri, Industrial Area, Phase-I, Delhi-110 083

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TEST REPORT

COMPOST (KHAAD) LAB ANALYSIS REPORT

1. GENERAL INFORMATION

- Report Number: E202503140001
- Report Date: 18/03/2025
- Sample ID:001
- Client Name / Organization: Executive Officer-Nagar Palika Parishad, Gonda (UP) Pincode 271001
- Source of Sample (Type of Compost): (Farmyard, Municipal, Vermicomposting, etc.)
- Date of Sample Collection: 13/03/2025
- Sampling location: Compost Unit, NPP Gonda.
- Date of Testing: 14/03/2025 to 18/03/2025

2. OBJECTIVE OF TEST

To analyze the nutrient content, physicochemical properties, and heavy metal contamination of the compost sample and assess its compliance with Indian Standard (IS) norms for compost quality.

3. STANDARDS REFERRED

- IS 9234:1979 (Specification for Compost)
- IS 10158:1982 (Specification for Organic Manures)
- FCO (Fertilizer Control Order) 1985
- CPCB Guidelines for Heavy Metal Limits in Compost
- IS 14765:2000 (Soil and Compost Standards for Agriculture Use)

4. SAMPLE DETAILS

- Sample Type: (Organic Compost / Municipal Compost / Vermicomposting)
- Physical Appearance: (Color, Texture, Moisture)
- Odor: (Earthy, Rotten, Ammonia-like)
- Collection Method: (Grab/Composite Sample)

5. TEST PARAMETERS AND RESULTS

A. Physical and Physicochemical Properties

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Parameter	Test Method (IS Standard)	Unit	Permissible Limit	Observed Value	Compliance (Yes/No)
Moisture Content	IS 10158:1982	%	≤ 25%	22.1	Yes
pH (1:10 extract)	IS 9234:1979	-	6.5 - 7.5	6.87	Yes
Electrical Conductivity (EC)	IS 14765:2000	dS/m	≤ 4.0	2.41	Yes
Organic Carbon	Walkley-Black Method	%	≥ 12%	14.2	Yes
C:N Ratio	IS 10158:1982	-	≤ 20:1	11.4	Yes
Bulk Density	IS 2720 (Part 3)	g/cm ³	< 0.7	0.02	Yes



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Report Number: E202503140001

B. Nutrient Content Analysis

Parameter	Test Method (IS Standard)	Unit	Permissible Limit	Observed Value	Compliance (Yes/No)
Total Nitrogen (N)	Kjeldahl Method	%	≥ 0.5%	0.62	Yes
Available Phosphorus (P)	Olsen Method	%	≥ 0.5%	0.58	Yes
Available Potassium (K)	Flame Photometry	%	≥ 0.5%	0.71	Yes
Total Organic Matter	IS 9234:1979	%	≥ 20%	24.6	Yes

C. Heavy Metals Analysis

Heavy Metal	Test Method (IS Standard/ICP-MS)	Unit	Permissible Limit (mg/kg)	Observed Value	Compliance (Yes/No)
Arsenic (As)	IS 14765:2000 / ICP-MS	mg/kg	< 10	BDL (DL-0.001)	Yes
Cadmium (Cd)	IS 14765:2000 / AAS	mg/kg	< 5	BDL (DL-0.005)	Yes
Chromium (Cr)	IS 9234 / AAS	mg/kg	< 50	BDL (DL-0.005)	Yes
Lead (Pb)	IS 14765:2000 / AAS	mg/kg	< 100	BDL (DL-0.01)	Yes
Mercury (Hg)	Cold Vapor AAS	mg/kg	< 0.15	BDL (DL-0.0005)	Yes
Nickel (Ni)	IS 9234 / ICP-MS	mg/kg	< 50	BDL (DL-0.005)	Yes
Zinc (Zn)	IS 9234 / AAS	mg/kg	< 1000	BDL (DL-0.01)	Yes

6. RESULTS INTERPRETATION

- pH Value:** Should be neutral to slightly alkaline for agricultural use.
- Electrical Conductivity:** Indicates salt concentration—high EC can harm plant growth.
- Organic Carbon:** A higher percentage improves soil fertility.
- C:N Ratio:** An ideal ratio ensures proper decomposition and nutrient availability.
- Heavy Metals:** Should be within safe limits to prevent contamination risks.

7. CONCLUSION

- The compost **Complies/Does not Complies** the required standards for agricultural use.
- Recommendations:
 - If high heavy metals are detected, suggest dilution or alternate composting methods.
 - If nutrient content is low, recommend organic supplements.

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Nutrient Content Analysis of Dried Sludge

Sr. No.	Parameter	Unit	Permissible Limit (mg/kg)	Observed Value	Source of Report
1	Total Nitrogen (N)	%	≥0.5%	4.70%	Monitoring and Evaluation of FSTPs by CSE
2	Available Phosphorus (P)	%	≥0.5%	3.20%	
3	Available Potassium (K)	%	≥0.5%	1.24%	
4	Total Organic Matter	%	≥20%	26.3%	

Nutrient Content Analysis of Wet waste+Dried Sludge (Ratio- 9:1)

Sr. No.	Parameter	Unit	Permissible Limit (mg/kg)	Observed Value	Source of Report
1	Total Nitrogen (N)	%	≥0.5%	0.62	Lab Test Report By ITL LABS PVT. LTD. (Govt. Approved Test House) Delhi
2	Available Phosphorus (P)	%	≥0.5%	0.58	
3	Available Phosphorus (P)	%	≥0.5%	0.71	
4	Total Organic Matter	%	≥20%	24.6	

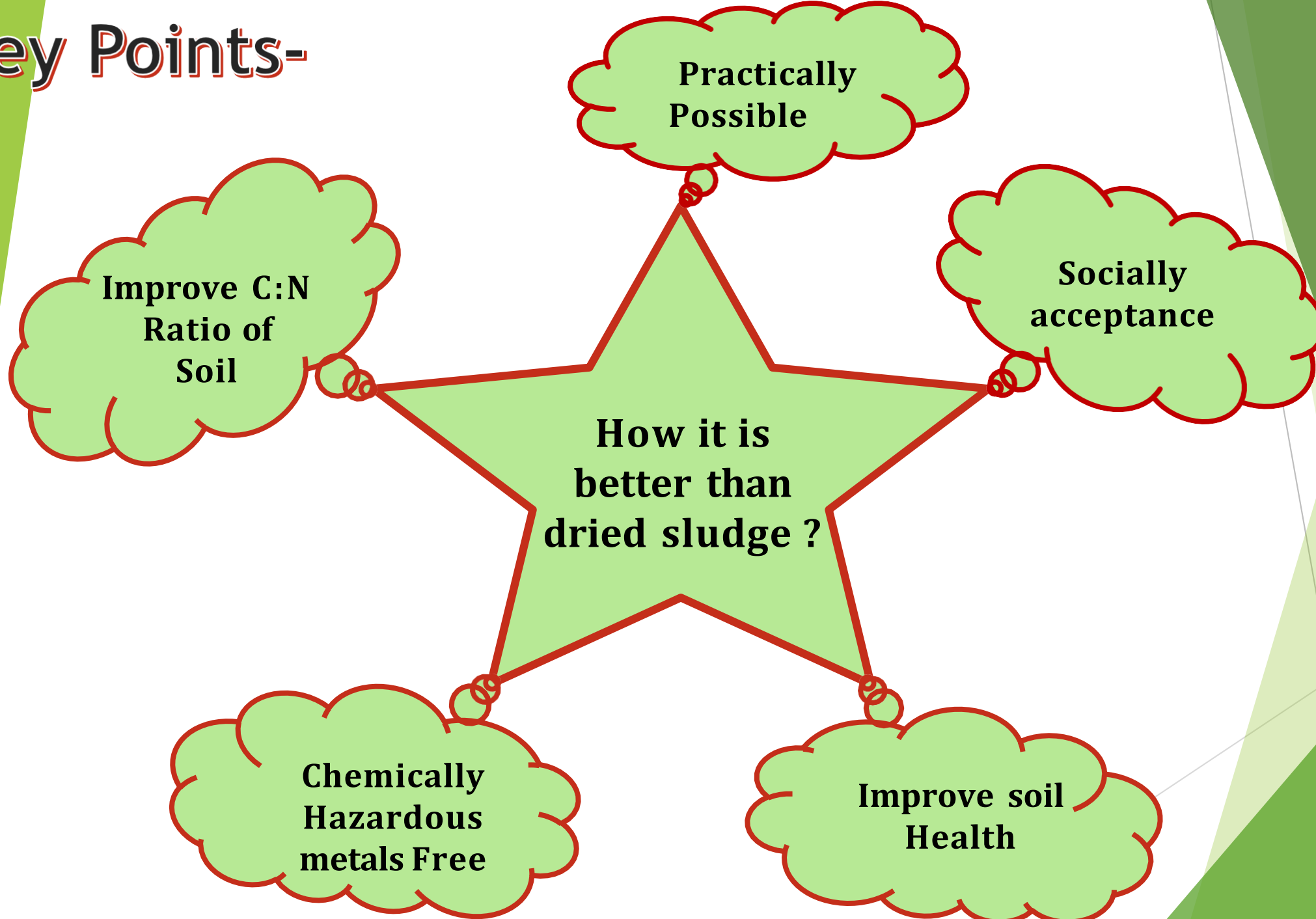
Havey Metal Analysis of Dried Sludge

Sr. No.	Havey Metal	Unit	Permissible Limit (mg/kg)	Observed Value	Compliance Yes/No	Source of Report
1	Arsenic (As)	mg/kg	<10	00.71	Yes	Monitoring and Evaluation of FSTPs by CSE
2	Cadmium (Cd)	mg/kg	<5	01.68	Yes	
3	Chromium (Cr)	mg/kg	<50	34.57	Yes	
4	Lead (Pb)	mg/kg	<100	33.30	Yes	
5	Mercury (Hg)	mg/kg	<0.15	00.67	No	
6	Nickel (Ni)	mg/kg	<50	22.37	Yes	
7	Zinc (Zn)	mg/kg	<1000	1512.67	No	

Final Compost Report of Wet waste+Dried Sludge (Ratio- 9:1)

Sr. No.	Havey Metal	Unit	Permissible Limit (mg/kg)	Observed Value	Compliance Yes/No	Source of Report
1	Arsenic (As)	mg/kg	<10	0.001	Yes	Lab Test Report By ITL LABS PVT. LTD. (Govt. Approved Test House) Delhi
2	Cadmium (Cd)	mg/kg	<5	0.005	Yes	
3	Chromium (Cr)	mg/kg	<50	0.005	Yes	
4	Lead (Pb)	mg/kg	<100	0.01	Yes	
5	Mercury (Hg)	mg/kg	<0.15	0.0005	Yes	
6	Nickel (Ni)	mg/kg	<50	0.005	Yes	
7	Zinc (Zn)	mg/kg	<1000	0.01	Yes	

Key Points-



Pit Based Composting



Municipal Wet Waste+Dried Sludge

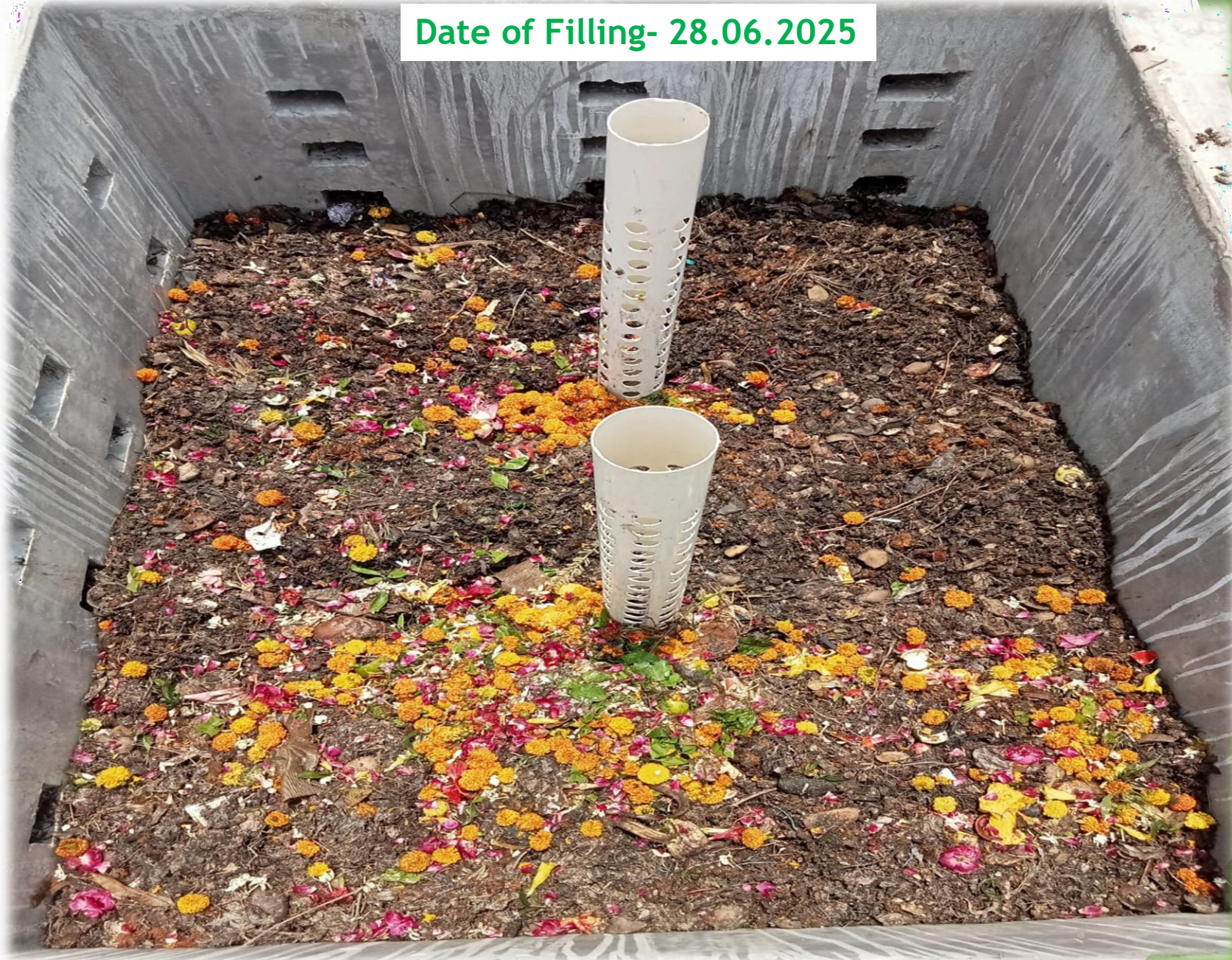
Date of Filling- 28.06.2025 (Municipal wet waste+Dried sludge)

Ratio-9:1 (Municipal wet waste:Dried sludge)

Date of Filling- 28.06.2025 (Municipal wet waste+Dried sludge)



Date of Filling- 28.06.2025





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