MCP SERVER | NO CODE | CLOUD HOSTED

Compost Bin Capacity Calculator MCP

Get precise measurements for your organic waste management.

Compost Bin Capacity Calculator MCP gives your AI agent the math skills needed to manage composting operations. It handles everything from calculating total bin volume to predicting how much space you'll actually have left after the material settles and decomposes.

A+ Quality Score 100/100

compost | gardening | volume | weight | agriculture

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vinkius.com/en/ai-agent-connect/compost-bin-capacity-calculator

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Compost Bin Capacity Calculator MCP

4 tools available
Cloud-hosted on Vinkius

Managing compost production requires more than just guesswork. If you're running a large scale operation or a community garden, you need to know exactly how much organic matter you can fit into your bins without overflowing or losing track of your inventory. This MCP gives your AI client the specific tools to handle those calculations for you.

You can use it to figure out the total physical space of a bin or the actual usable volume once you account for necessary headspace and aeration gaps. It also helps you estimate the weight of your organic materials based on density, which is vital for logistics. Because compost shrinks as it breaks down, the MCP can also predict settled volume, helping you plan for future capacity needs. Instead of doing manual math, you just give your agent the dimensions and density, and it handles the rest.

Core Capabilities

01 — Volume Calculations

Your agent calculates total and usable bin space.

02 — Weight Estimation

Your agent determines material weight using density inputs.

03 — Decomposition Prediction

Your agent estimates volume loss from compaction and settling.

04 — Headspace Management

Your agent calculates usable capacity while leaving room for aeration.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/compost-bin-capacity-calculator** — connect your AI agent in three steps.

01 Connect your AI client to the Vinkius hosted MCP.

02 Provide the bin dimensions or material density to your agent.

03 The agent calls the specific calculation tool needed.

04 Your agent delivers the precise volume or weight results.

Connect your client to Vinkius and start running calculations through your agent.

Built For

This MCP is built for professionals managing organic waste and soil production.

Farm Managers

They hand off bin dimension data to the AI to plan seasonal compost batches.

Compost Facility Operators

They use the agent to track material weight and expected volume shrinkage.

Landscape Professionals

They use the tool to calculate how much organic material they can store on site.

What Changes When You Connect

01 Eliminates manual math for bin capacity and material weight.

02 Accounts for aeration gaps to prevent overfilling.

03 Predicts volume loss to improve long term storage planning.

Real-World Applications

Inventory Planning

Calculate how much organic waste you can accept based on your current bin availability.

Logistics and Transport

Estimate the weight of compost piles to prepare for hauling and transport.

Space Optimization

Determine the effective capacity of bins to ensure proper airflow and headspace.

Settlement Forecasting

Predict how much space will open up in your bins as material compacts over time.

Patterns to Avoid

Ignoring aeration needs

AVOID

You tell your agent to fill a bin to its absolute maximum physical limit. This leads to overfilled bins that lack the air needed for decomposition.

✓ INSTEAD

Always use `calculate_effective_capacity` to ensure you leave enough headspace for proper airflow.

Overlooking material shrinkage

AVOID

You plan your next batch of organic waste based on the initial volume of a fresh pile. You quickly run out of space because the material settles.

✓ INSTEAD

Use `predict_settled_volume` to see how much space will actually be available once the material compacts.

Guessing weight for transport

AVOID

You estimate how many trucks you need by looking at the pile size without considering density. You end up overweight on the road.

✓ INSTEAD

Run `estimate_material_weight` to get a realistic weight based on your specific material density.

The Right Fit

Connect this MCP if you manage large scale organic waste or community compost operations. If you only handle small backyard

piles, the math is simple enough to do yourself. The decision comes down to whether you need to coordinate logistics and transport for heavy loads.

Compost Bin Capacity Calculator 4 Tools

These tools handle the math for bin volume, material weight, and expected shrinkage. Your agent uses them to manage physical space and logistics.

#	TOOL	DESCRIPTION
01	`calculate_bin_volume`	This tool finds the total physical volume of your compost bin based on its dimensions.
02	`calculate_effective_capacity`	This tool determines the usable volume of a bin after accounting for necessary headspace.
03	`estimate_material_weight`	This tool calculates the estimated weight of organic material using volume and density.
04	`predict_settled_volume`	This tool predicts how much volume the material will occupy after it settles due to compaction.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U What is the total volume of a bin that is 2m long, 1m wide, and 1.5m high?

The total physical volume of the bin is 3 cubic meters.

U How much compost can I fit in a 10 cubic meter bin if I leave 20% for headspace?

The effective volume available for compost is 8 cubic meters, with 2 cubic meters reserved for headspace.

U If I have 5 cubic meters of material with a density of 500 kg/m3, how heavy is it?

The estimated weight of the material is 2500 kg.

Frequently Asked Questions

01 **How do I use this MCP with my AI client?**

You connect your client, such as Claude or Cursor, to Vinkius once. After that, your agent can immediately use the tools in this MCP.

02 **Can this tool help with aeration needs?**

Yes. The calculate_effective_capacity tool allows you to account for headspace, which is necessary for proper aeration.

03 **Does it account for compost shrinking?**

Yes. You can use the predict_settled_volume tool to estimate how much the volume will decrease due to compaction.

04 **What information do I need to provide for weight estimates?**

You will need to provide the volume of the material and its density to the agent.

05 **Is there any setup required on my end?**

No. Vinkius hosts and manages the MCP, so you just connect your client and start working.

06 **How do I calculate the usable space in my bin?**

You can use the `calculate_effective_capacity` tool. Provide the bin's internal dimensions and the percentage of height you want to leave empty for aeration.

07 **Can I estimate the weight of my organic waste?**

Yes, use `estimate_material_weight` by providing the volume of the material and its specific density.

08 **How much will my compost shrink over time?**

Use the `predict_settled_volume` tool. You will need to provide the initial volume and a compaction factor representing the expected volume loss.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"compost-bin-capacity-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Compost Bin Capacity Calculator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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DOCUMENT INFORMATION

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Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

LICENSE & USAGE

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